

CHAPTER 21

THE PURPOSE OF A FIP RESOURCES REQUIREMENTS ANALYSIS

Chapter Vignette

“You can see” Marcia continued, “that a great deal of planning must go into a FIP resource acquisition. The planning is quite broad initially, but becomes much more detailed, especially in the requirements analysis.”

“Wait a minute,” said Mark. “Is this requirements analysis some tricky procedure that I have to do alone?”

“No,” continued Marcia. “Since a major part of planning is the requirements analysis, it involves several key people such as the ‘Trail Boss,’ the program manager, and technical experts from the requiring activity. You must understand what they are doing, why they are doing it, and how it will affect the acquisition. You need to be prepared to advise the acquisition team.”

Course Learning Objectives

At the end of this chapter, you will be able to:

Overall:

Explain the purpose of a FIP resources requirements analysis.

Individual:

- 21.1 Discuss the purpose of a requirements analysis.
- 21.2 Explain the effect of the following key statutes on the requirements analysis:
 - Smith-Fess Act of 1920
 - Rehabilitation Act of 1973, as amended
 - Rehabilitation Act of 1988
 - Telecommunications Accessibility Enhancement Act of 1988
- 21.3 Distinguish the roles of the FIP resource acquisition team.
- 21.4 Identify the potential contributions of the Contracting Officer to the needs determination and analysis of requirement in an oversight capacity

Chapter Overview

Scope

This chapter discusses the purpose of a FIP resource requirements analysis. A requirements analysis is a critical part of the overall acquisition planning done by the requiring Federal agency. You will see that a thorough requirements analysis is essential to justify the acquisition and establish the foundation for the solicitation.

You need to be aware that if a requirements analysis is not done properly and thoroughly, agency program or technical personnel may jump to a solution (specify an acquisition) without fully considering what the requirements are.

For example, a requiring agency may determine that it has a “compatibility-limited requirement” and must acquire a FIP resource that is 100 percent compatible with equipment already on hand. If this type of determination is made, the requiring agency **MUST** fully support this need in a requirements analysis that conforms to FIRMR 201-20.1, especially provisions in 201- 20.103-4.

As a contracting officer or contract specialist, *you cannot automatically rely on the requiring activity or technical advisors to conduct a thorough requirements analysis without some guidance.* You must understand what happens in a requirements analysis and be able to examine and critique the results of the requirements analysis.

This chapter introduces the requirements analysis. Further detail on the content of a requirements analysis follows in Chapter 22, “Content of a Requirements Analysis.” In Chapter 24, “Analysis of a Requirements Analysis,” you will learn how to critique a requirements analysis.

Chapter Overview *(continued)*

References

To understand and perform the procedures in this chapter, you may need to refer to one or more of the following references:

- FAR 6.303, 6.304, 7.103 and 7.104
- FIRMR 201-20.1
- The Smith-Fess Act of 1920
- The Telecommunications Accessibility Enhancement Act of 1988
- The Rehabilitation Act of 1973, as amended
- The Rehabilitation Act of 1988
- OMB Circulars A-11, *Preparation and Submission of Budgets*, and A-130, *Management of Federal Information Resources*.
- GSA's *Overview Guide: Acquisition of Information Resources*

Topics Covered in this Chapter

This chapter contains the following topics:

SECTION	TITLE	PAGE
21.1	Purpose of a FIP Resource Requirements Analysis	21-5
21.2	Effect of Key Statutes on the Requirement Analysis	21-9
21.3	Roles of the FIP Resource Acquisition Team	21-11
21.4	Contributions of the Contracting Officer in an Oversight Capacity	21-13

21.1 Purpose of a FIP Resource Requirements Analysis

Origin of the Requirements Analysis

The rules dictating requirements analysis are based on a fundamental precept of contracting—that *needs are determined before goods and services are bought*.

FAR 7.102 and 7.103

This precept is represented in FAR 7.103(b) which requires agency heads to ensure “that acquisition planners address the requirement to specify needs, develop specifications” and solicit offers competitively where possible and “with due regard to the nature of the supplies or services to be acquired.” In addition, FAR 7.102 indicates that the “purpose of this [acquisition] planning is to ensure that the Government meets its needs in the most effective, economical, and timely manner.”

FAR 7.104

FAR 7.104 establishes that “acquisition planning should begin as soon as the agency need is identified.” It discourages issuing requirements on an urgent basis, since that generally restricts competition and raises prices. It encourages close cooperation among the contracting officer, planner, technical experts, and logistics personnel, such as facilities engineers.

Purpose of a FIP Resource Requirements Analysis

This general requirement to determine needs is refined in the FIRMR. FIRMR 201-20.1 explains that the purpose of the requirements analysis is to determine and document requirements for FIP resources. *It provides the basis on which the alternatives for meeting the requirements can be analyzed.* It is therefore a process for the agency to identify its needs in terms of the mission, objectives, and functions which it must perform.

FIRMR 201-20.1

[Note: You will learn more about the analysis of alternatives, the process following the requirements analysis, in Chapter 26, “The Purpose and Content of an Analysis of Alternatives.”]

The requirements analysis is the basis on which alternatives are analyzed and specifications are developed. In fact, these requirements are the foundation for the entire acquisition including the eventual selection of one alternative as most advantageous to the Government. These requirements are important even after contract award, since they help determine during contract administration if the agency’s needs are being met on a continuing basis.

(Topic continued on next page)

21.1 Purpose of a FIP Resource Requirements Analysis *(continued)*

Purpose of a
FIP Resource
Requirements
Analysis
(continued)

A good requirements analysis begins with a look at the strategic plan and the status quo. From the current system or program, agency planners identify problems and convert them into objectives for the new system, consistent with strategic plans.

Therefore, the purpose of a requirements analysis is to answer questions such as:

- What is our current function and mission?
- What are our strategic objectives?
- What information do we need?
- What is the current system and how effective is it?
- What are our problems?
- What do we need in the future?
- How much of the future are we planning for?

You can see that the answers to these questions change over time.

Effect of Systems
Life on
Requirements
Analysis

You should also realize that the answers may change depending on “how much of the future” is being considered. We call this the *systems life*.

If, for example, an agency has an outdated system and the timeframe for action is short, the agency could decide that its requirement is for a *noncompetitive* engineering upgrade to the current system. However, using a larger timeframe, the agency could determine that the outdated system will not meet agency requirements over a five year systems life and, further, is an impediment to competition. In this case, the agency’s requirement might be for a competitive replacement of the installed system.

Unless a requirements analysis is thorough and complete, it may limit competition unreasonably. Then the agency would not be able to select the single alternative which is most advantageous to the Government.

(continued on next page)

21.1 Purpose of a FIP Resource Requirements Analysis *(continued)*

Effect of
Requirements
Analysis on
Competition

FAR 6.303 and 6.304

In the engineering upgrade example discussed above, the requirements analysis led to the conclusion that only the manufacturer could meet the agency's short-term requirement. This conclusion would be critical to the acquisition, because it would limit competition and require detailed justification to comply with the *noncompetitive* justification requirements of FAR 6.303 and 6.304.

If agency management or the contracting office question the short-term, noncompetitive nature of the solution, the program and technical staff might have to reevaluate their conclusions, causing delay in the acquisition process.

FIRMR
201-20.103-4

Requirements analyses that result in *compatibility-limited* requirements also require special justification. FIRMR 201-20.103-4 directs that agencies limit compatibility-limited requirements to those necessary to satisfy agency needs. It also specifies that *compatibility-limited requirements must be justified on one of two grounds:*

- agency technical or operational requirements for compatibility when adding to or replacing installed FIP resources, OR
- great risk and impact of conversion failure.

Unfortunately, it is very easy to rely too readily on specific make and model or compatibility-limited requirements. Unless the requiring agency proceeds through a structured requirements analysis, specific acquisitions may not support the agency's strategic objectives and program goals—nor comply with the statutory mandate for competition.

To avoid unnecessarily limiting competition, agencies should state requirements in terms of the functions to be performed or the required results, rather than how functions will be accomplished or results achieved. Stating requirements in functional terms permits consideration of the broadest possible range of solutions.

So you can see that if the requirements analysis is not properly and thoroughly performed, the agency may not have sufficient justification for limiting competition and could lose valuable time in the acquisition process. These problems can be avoided if requirements are stated functionally and if senior management and the contracting office participate in or monitor the development of the requirements analysis.

(continued on next page)

21.1 Purpose of a FIP Resource Requirements Analysis *(continued)*

No Overall Exceptions

There are no exceptions to the overall requirement that agencies conduct a requirements analysis before buying FIP resources. This makes sense when you consider the fundamental need for determining *what to buy before you buy it*.

However, the FIRMR does provide for some exceptions to the content of a requirements analysis. For example, although there is a mandatory requirement to justify specific make and model requirements, this requirement is excepted under certain circumstances. You will learn more about this in the next chapter.

Critical Part of Acquisition Planning

The requirements analysis is thus a very critical part of acquisition planning. It establishes both the means of achieving strategic goals and lays the foundation for the rest of the acquisition.

21.2 Effect of Key Statutes on the Requirements Analysis

Key Statutes Influencing the Requirements Analysis

You should know that several statutes influence the requirements analysis with regard to providing tools needed for job performance to persons with disabilities. This is called “accessibility.” These key statutes include:

- *Smith-Fess Act of 1920*
- *Rehabilitation Act of 1973, as amended*
- *Telecommunications Accessibility Enhancement Act of 1988*
- *Rehabilitation Act of 1988*

Smith-Fess Act of 1920

Although the *Smith-Fess Act of 1920* was passed long before computers, it influences the requirements analysis because it was the first law to require planning for vocational training for injured and disabled workers to return them to productive participation in the work force. Later laws and regulations concerning training and job access for the handicapped grew out of this early law. Now Federal and state agencies must consider use of technology—and provide access to that technology—for all workers, including the disabled.

Rehabilitation Act of 1973, as amended

The *Rehabilitation Act of 1973* requires all agencies to develop “comprehensive and continuing plans” to help handicapped individuals “prepare for and engage in gainful employment.” Further, agencies must “promote and expand employment opportunities” and “place such individuals in employment.”

In 1986, this law was reauthorized and amended by the *Rehabilitation Act Amendments of 1986* (P.L. 99-506) to add section 508 on electronic equipment accessibility. Its purpose is “to insure that handicapped individuals may use electronic office equipment with or without special peripherals.” Congress mandated that guidelines for electronic equipment accessibility be established and that agencies comply with the guidelines.

This law is the statutory basis for the mandatory provision in FIRMR 201-20.103-7 that requirements analyses address accessibility requirements for the disabled.

(continued on next page)

21.2 Effect of Key Statutes on the Requirements Analysis *(continued)*

Rehabilitation Act
of 1988

The *Rehabilitation Act of 1988* influences agency planning and requirements analysis because it requires “*rehabilitation engineering*”—the systematic application of technologies, engineering methodologies, or scientific principles to address the barriers confronted by individuals with handicaps. This clearly includes consideration of disabled individuals in a requirements analysis for a FIP resource acquisition.

Telecommunica-
tions Accessibility
Enhancement Act
of 1988

The *Telecommunications Accessibility Enhancement Act of 1988* also influences the requirements analysis. It requires that Federal agencies take necessary actions to assure that the Federal telecommunications system is *fully accessible* to hearing-impaired and speech-impaired individuals.

It also defines the term *Telecommunications Device for the Deaf (TDD)* as a machine which employs graphic communications in the transmission of coded signals through the nationwide telecommunications system.

Assistance with
Rehabilitation Act
Requirements

FIRMR Bulletins C-8 and C-10

Because of these laws and because computers can expand the capabilities of the disabled, GSA issued FIRMR Bulletins C-8, *Information accessibility for employees with disabilities*, and C-10, *Telecommunications accessibility for hearing and speech impaired individuals*. You will learn more about these and other sources of accessibility information in the next chapter.

21.3 Roles of the FIP Resource Acquisition Team

The FIP Resource Acquisition Team

Reminder: Although the roles of personnel have been previously discussed, it is imperative that the RA be developed with participation of all parties. The size of the FIP resource acquisition affects the size and the composition of the FIP resource acquisition team. If the FIP acquisition is very large and complex, there may be many individuals who must coordinate in the development of the requirements analysis and other aspects of acquisition planning. Contracting personnel are normally involved early in planning for major buys.

On the other hand, if the FIP resource acquisition is relatively small and not very complex, you may see the requirements analysis, but not deal with those responsible for its development. In the smallest buys, you may only see the requisition, not the requirements analysis.

Nonetheless, you need to know about the key persons and their roles and responsibilities in developing the requirements analysis and the overall acquisition plan. This is because contracting staff are most effective when knowledgeable about the reasons for the acquisition.

Roles of Key Individuals

Because FIP resource requirements are tied to the overall strategic plan, you will find that several key individuals may have important roles and responsibilities.

These key individuals may include a “Trail Boss,” a Program Manager, the requiring agency’s information resources manager (IRM) as well as the contracting officer. Keep in mind that the Program Manager could be a “Trail Boss.” You may deal with one or all of these, depending on the size of the FIP resource acquisition. Key individuals’ roles and responsibilities are detailed in the paragraphs and table that follow.

21.3 Roles of the FIP Resource Acquisition Team *(continued)*

Trail Boss

In very complex and expensive FIP system acquisitions, such as major FIP system modifications, you may find that the requiring agency assigns a “Trail Boss” in accordance with FIRMR Bulletin C-7 to guide the overall acquisition.

The Trail Boss, a high-level acquisition manager, works closely with the contracting officer and others to ensure that all aspects of acquisition planning, including the requirements analysis and justifications, have been met.

Remember that the Trail Boss is a carefully selected individual who has been through a special GSA training program. He or she knows a great deal about both the specific FIP resource requirement and the Federal acquisition process and can provide knowledgeable assistance and guidance throughout the course of the acquisition.

DOD Program Manager

In those cases where the large scale acquisition concerns a DOD agency, you may find that a DOD Program Manager is also involved in acquisition planning and the requirements analysis. The DOD Program Manager is an expert on the special program requirements, but not necessarily in either FIP resources or the acquisition process. In such cases, the DOD Program Manager will normally be assisted by an Information Resource Manager.

Information Resource Manager

Whether or not a Trail Boss is appointed, you may encounter another key individual in a FIP resource acquisition—the Information Resource Manager (IRM). The IRM assists the program manager and acts as the technical advisor in developing strategic, mid range and short range requirements for FIP resources. You may work closely with this individual concerning the requirements analysis and technical aspects of the acquisition.

21.3 Roles of the FIP Resource Acquisition Team *(continued)*

Key Participants The following table summarizes the key roles and responsibilities of those involved in planning and developing the requirements for the acquisition.

Key Participants' Planning Roles and Responsibilities	
Program Manager (PM)	Originates the requirement for FIP resources. Together with the IRM, develops long range, mid range and short range FIP requirements and acquisition plans for meeting FIP requirements. Coordinates with CO; requests Delegation of Procurement Authority (DPA); directs preparation of procurement request(s), Independent Government Estimates (IGE), and market surveys; and prepares justifications. <i>May be a Trail Boss.</i>
Information Resources Manager (IRM)	Assists the PM and acts as technical advisor to the requiring office to develop long range, mid range and short range requirements and acquisition goals. Prepares the Agency Procurement Request (APR), writes the Statements of Work (SOW) and specifications. Develops source evaluation criteria and evaluation factors.
Contracting Officer (CO)	Coordinates all procurement activities. Advises PM. Prepares Acquisition and Source Selection Plan. Prepares and publicizes solicitation.

21.4 Contributions of the Contracting Officer in an Oversight Capacity

Role of Contracting Officer

As the contracting officer or contract specialist, you may work closely with any of these individuals, but remember that it is the contracting officer's responsibility to coordinate all the procurement activities. This includes acting in an "oversight capacity," advising members of the FIP resource acquisition team, and raising questions concerning deficiencies in the requirements analysis, justifications, or other documents.

You should also know that the contracting officer can make many contributions to the needs determination and analysis of requirements while acting in an oversight capacity. *In fact, it is your role to be a positive contributor to the team's effort.*

Although you are not expected to be an expert in the technical aspects of FIP resources, you may contribute to the needs determination and analysis of requirements in several ways. These include:

- advising other members of the team on the use of applicable IRM standards and specifications they should research;
- explaining the impact of the statutes, OMB circulars and policy which must be followed, including the minimum mandatory considerations which must be included in the requirements analysis;
- explaining the special requirements of the Federal acquisition process, including lead times for negotiated procurements, and requirements for any justifications, such as compatibility-limited requirements; and
- explaining sources of possible assistance, such as GSA's guidebooks and Office of Technical Assistance.

You will learn more about contributing to the development of a requirements analysis in Chapter 22, "Content of a Requirements Analysis," and Chapter 24 "Analysis of a Requirements Analysis."

GSA's Planning Support

Note that your agency can get planning assistance from GSA's Office of Technical Assistance on a cost-reimbursable basis.

SUMMARY

In this chapter, you learned about the purpose of a FIP resource requirements analysis. In the next chapter, you will learn about the contents of a requirements analysis and how to determine if the mandatory and nonmandatory requirements are included in the requirements analysis.

CHAPTER 22

CONTENT OF A REQUIREMENTS ANALYSIS

Chapter Vignette

“I can appreciate the need for a requirements analysis,” Mark said. “It is much more than a few lines of text explaining the need for the acquisition. I’m glad I’ll have so much high-powered help.”

“You bet,” Marcia said. “There will be plenty of high level involvement, but you must understand the FIRMR requirements. There are special requirements, such as considering accessibility for the handicapped. Program and technical staff are sometimes unaware of or forget these requirements because they are so focused on the technical needs. You need to make sure these special requirements are not overlooked.”

Course Learning Objectives

At the end of this chapter, you will be able to:

Overall:

Understand and discuss the mandatory and nonmandatory content of a requirements analysis.

Individual:

- 22.1 Distinguish some fundamental principles necessary in developing a requirements analysis.
- 22.2 Identify mandatory factors to consider when determining information resources requirements.
- 22.3 Identify nonmandatory factors to consider when determining information resources requirements.

Chapter Overview

Scope

You learned in the last chapter that agencies often have their own rules for developing requirements analyses. You also learned that sometimes the nature of the acquisition determines what should be considered in a requirements analysis. And finally, you learned that the FIRMR mandates specific considerations for a requirements analysis for FIP resources.

You also learned that although the FAR requires that agencies identify and specify needs, the mandate for a requirements analysis per se originates in the FIRMR.

This chapter explains the FIRMR's mandatory considerations for inclusion in a requirements analysis and describes what's intended and how to address them.

This chapter also explains certain nonmandatory factors to consider when determining information resource requirements, and explains that standards should be considered as part of the requirements analysis.

References

You may need to refer to the following references to understand the fundamentals of requirements analysis.

- FIRMR 201-20.1, *Requirements Analysis*
- GSA's handbook, *A Guide for Requirements Analysis and Analysis of Alternatives*
- GSA's Office of Technical Assistance (OTA) guides, *Performing a Requirements Analysis for Acquisition of Federal Information Processing Equipment* and *A Guide to Alternative Requirements Analysis Methodologies*

You can reach GSA's IRM Reference Center on (202) 501-4860 and OTA on (703) 756-4100.

Additional references, pertinent to the topic being discussed, are indicated throughout this chapter.

Chapter Overview *(continued)*

Topics in This Chapter

This chapter includes the following topics:

SECTION	TITLE	PAGE
22.1	Fundamental Principles	22-5
22.2	Identify mandatory factors to consider when determining information resources requirements	22-8
22.3	Identify nonmandatory factors to consider when determining information resources requirements	22-27

22.1 Fundamental Principles

Basic Need

FAR 7.103 and 7.104

As you learned in the previous chapter, the FAR addresses a fundamental precept of contracting—that *needs are determined before goods and services are bought*.

Specifically, FAR 7.104 indicates that “acquisition planning should begin as soon as the agency need is identified.” FAR 7.103 requires agency heads to ensure that acquisition planners “specify needs.”

You now know that although the FAR requires that agencies identify and specify needs, *the mandate for a “requirements analysis” originates in the FIRMR*. FIRMR 201-20.001 describes the requirements analysis as the “beginning” of an acquisition.

The FIRMR’s Principles

FIRMR 201-17.001

FIRMR 201-17.001, *Predominant Considerations*, establishes some of the fundamental principles that apply to the acquisition of FIP resources in general, including the development of a requirements analysis. They include the need for agencies to:

- Base requirements for FIP resources on agency mission, programs, and related information needs;
- Consider using advanced technology to enhance future program performance in support of the agency’s mission;
- Achieve full and open competition to the maximum extent practicable;
- Acquire resources that comply with federal standards;
- Provide for security of resources, protection of information about individuals, continuity of operations, and national security and emergency preparedness;
- Provide individuals with disabilities equal access to electronic office equipment;
- Provide telecommunications access to hearing and speech impaired individuals; and
- Acquire microcomputers, monitors, and printers that are energy efficient.

(Topic continued on next page)

22.1 Fundamental Principles *(continued)*

The FIRMR's Principles (continued)

So you can see that these considerations address more than specific requirements for an individual acquisition: they also require agencies to consider fundamental statutory policies like the need for ensuring competition, protecting privacy and security, and complying with standards.

As you read through the following sections, remember that the FIRMR's requirements analysis provisions address *management* issues as well as *acquisition* issues. The management issues are related to life cycle planning. The acquisition issues relate to the procurement requirements. As a contract specialist, you're not just buying FIP resources, you are managing FIP resources. In fact, some of the provisions provide information unrelated to the completion of the requirements analysis.

*Once you understand that the requirements analysis is used to establish needs **and** establish the agency's compliance with the law in meeting those needs, you have understood the essential nature of the requirements analysis.*

FIRMR 201-20.103-3

FIRMR 201-20.103-3 reiterates and builds on the predominant considerations by establishing certain principles that agencies must follow when describing their needs. These principles require agencies to:

- Base requirements on mission needs;
 - Express needs in terms of increasing economy and efficiency, meeting new or changed program requirements, or correcting deficiencies in existing capabilities;
 - Describe requirements functionally to the extent possible;
 - Use restrictive requirements only when necessary to satisfy the agency's needs;
 - Describe requirements to obtain full and open competition or justify other than full and open competition as required by the FAR;
 - Document both quantitative or qualitative requirements needed to meet mission needs; and
 - Consider aggregating requirements.
-

(continued on next page)

22.1 Fundamental Principles *(continued)*

Size of the
Requirements
Analysis

FIRMR Part 201-20.102

FIRMR 201-20.102 requires agencies to establish and document requirements for FIP resources by conducting a requirements analysis *commensurate with the size and complexity of the need*. So the content of the requirements analysis varies according to the size and complexity of the FIP resource acquisition.

If the acquisition is large and complex, the requirements analysis may be very extensive and involve many people. It may even be “contracted out” to a private sector firm specializing in requirements development or systems integration. The result may be a large and complex document produced over a period of several months or more.

On the other hand, if the FIP resource acquisition is fairly simple and straightforward, the requirements analysis may be a much smaller document produced with a few days of work “in house” by technical personnel from the requiring agency.

So you must understand that the requirements analysis must fit the procurement in terms of depth, complexity, length, and content.

22.2 Mandatory Factors to Consider When Determining Information Resources Requirements

FIRMR Requirements

FIRMR 201-20.1

As you know, FIRMR 201-20.1 explains that a requirements analysis is used to determine and document requirements for FIP resources. It also requires that a “requirements analysis shall include, *at a minimum*, consideration of the following factors” —

1. Information needs;
2. System life;
3. Description of requirements;
4. Justification and approval for any compatibility-limited requirements;
5. Justification and approval for any specific make and model requirements;
6. Security requirements;
7. Accessibility requirements for handicapped individuals;
8. Space and environmental requirements;
9. Workload and related requirements;
10. Records management requirements; and
11. Energy efficiency requirements for microcomputers.

These requirements are sometimes called “mandatory” requirements, but that is not entirely accurate. For example, if you are buying just support services, you generally do not need to address “energy efficiency requirements for microcomputers.” You need to think of these requirements as *mandatory to the extent that they apply to your acquisition*.

(Topic continued on next page)

22.2 Mandatory Factors to Consider When Determining Information Resources Requirements *(continued)*

FIRMR
Requirements
(continued)

The table below summarizes the FIRMR's requirements for the requirements analysis and provides the FIRMR reference.

SUMMARY OF FIRMR REQUIREMENTS	
REQUIREMENTS ANALYSIS	FIRMR
Described in terms of: Mission Need Functional and performance needs Full and open competition	201-20.103-3(a) 201-20.103-3(b) 201-20.103-3(c)
Addressing: Information needs Systems life Quantitative and qualitative requirements Aggregating requirements Security and privacy Accessibility requirements for disabled Space and environment Workload, current and projected, including: Contingency requirements Records management Energy efficiency for microcomputers Standards	201-20.103-1 201-20.103-2 201-20.103-3(d) 201-20.103-3(e) 201-20.103-6 201-20.103-7 201-20.103-8 201-20.103-9 201-20.103-9(d) 201-20.103-10 201-20.103-11 201-20.303
Justifying if: Specific make and model Compatibility-limited Other than full and open competition	201-20.103-5 201-20.103-4 201-20.103-3(c)

The following sections address these requirements in greater detail, suggesting when and how they might apply. The FIRMR provisions are quoted in bold type, followed by discussion and interpretation of the requirement.

22.2 Mandatory Factors to Consider When Determining Information Resources Requirements *(continued)*

Information Needs

FIRMR 201-20.103-1

Agencies shall determine their information needs by considering —

- (a) Their need to provide information to and obtain information from the public and other agencies;**
- (b) Available sources of information;**
- (c) Information format, media, quantity, integrity, security, and timeliness requirements;**
- (d) Essential records and information required to support current and future program and mission needs;**
- (e) Agency records retention and disposition requirements and the need to assure archival acceptability of permanent or long-term records;**
- (f) The integration of electronic records with other agency records; and**
- (g) Existing or planned intra or interagency operability requirements.**

This requirement is based on the policies of the *Paperwork Reduction Act* and OMB Circular A-130, which emphasize that information is a resource to be managed. If you look at this requirement closely, you will understand that some have more to do with agency management than the acquisition of specific FIP resources.

The requirement in FIRMR 201-20.103-1 to address information needs is most applicable to the acquisition and management of large systems, especially those which involve systems integration, facilities management, or systems development support services. Nonetheless, if special information needs are related to and are a part of the acquisition at hand, those needs should be documented as part of the requirements analysis.

For example, acquisitions for desktop computing hardware and software may include requirements for the form and format of information, such as the ability to create files in a specific format, or the media to be used, such as 3.5" high density disks.

(Topic continued on next page)

22.2 Mandatory Factors to Consider When Determining Information Resources Requirements *(continued)*

Information Needs (continued)

To determine their information requirements, agencies should consider:

- What information is currently received?
 - What additional information is needed?
 - What are the sources of the information?
 - What information is provided to public and private sector users?
 - Where is the information needed?
 - What additional information should be provided?
 - How is the information interrelated or related to information outside the system?
 - How will the information be acquired and disbursed?
 - How much information is needed?
 - How will the information be maintained and its security, confidentiality, accuracy, and completeness assured?
 - What timeliness is required for the information?
 - How must the information be formatted?
-

System Life

FIRMR 201-20.103-2

Agencies shall establish a system life as a part of the requirements analysis. If the acquiring activity can predict reuse of the FIP resource by another component within the agency after it no longer meets the acquiring activity's needs, the reuse period shall be included in the system life.

The system life, defined in FIRMR 201-4.001, is *a projection of the time period that begins with the installation of the FIP resource and ends when the agency's need for that resource has terminated*. A system life should be established for every acquisition.

The system life answers the question: *How long will the acquired resources satisfy the user?* In some cases, the user may believe that the computer (or other FIP resource) can meet all requirements for many months (with or without upgrades). In other cases, it may be obvious that the acquisition will only be a "stopgap" measure to meet a requirement for a few years or even a few months. The system life is usually expressed in months: *"We estimate that this acquisition will satisfy this agency's requirements for 60 months."*

(Topic continued on next page)

22.2 Mandatory Factors to Consider When Determining Information Resources Requirements *(continued)*

System Life (continued)

Factors that can affect the system life determination include:

- Users' projected needs in general,
- The rate of advancing technology,
- The probability of continued support,
- Lead time required to conduct replacement procurements, and
- Reassignment and reuse.

You should be aware that agencies do not normally include reuse in the systems life, because it cannot be predicted with relative certainty. You should also be aware that although system lives have traditionally been around eight years, technology life cycles are now shorter. System lives of five and even two or three years are more common.

The system life is established so that the agency can analyze alternatives that will meet its needs over a set period of time. For example, if the agency wants to compare the costs of leasing and purchasing, the agency's costs over the same period of time are compared.

As you learned in the last chapter, the *systems life can affect the competitiveness of alternatives available to the agency.*

Description of Requirements

FIRMR 201-20.103-3

Agencies shall —

- (a) Base requirements on mission needs expressed in the form of opportunities for increased economy and efficiency, new or changed program requirements, or deficiencies in existing capabilities;**
- (b) Describe requirements in terms of functions to be performed and performance to be achieved, unless a more restrictive statement of requirements is necessary to satisfy the agency's needs;**
- (c) Describe requirements in a manner that will attain full and open competition when contracting for FIP resources unless other than full and open competition is justified in accordance with subpart 201-39.6 and FAR part 6;**

(Topic continued on next page)

22.2 Mandatory Factors to Consider When Determining Information Resources Requirements *(continued)*

Description of
Requirements
(continued)

- (d) **Document in the requirements analysis the quantitative or qualitative requirements that must be met and why those requirements are necessary to meet the mission needs; and**
- (e) **Consider aggregating requirements on organizational or functional bases and conducting a requirements analysis on the basis of the aggregated requirements.**

This is the heart of the requirements analysis—the description of requirements. This section, more than any other, seeks to answer:

- What is our function and mission?
- What is the shortfall in meeting our function and mission?
- What are our strategic objectives?
- What is the current system and how effective is it?
- What resources do we need?
- What are our problems?
- What do we need in the future?

The FIRMR establishes certain standards for the way in which requirements are expressed. These include the mandates that agencies:

- Relate requirements to mission need
- Establish basis for need in performance terms
- Describe needs functionally
- Describe needs to obtain full and open competition
- Describe quantitative and qualitative needs
- Aggregate requirements

(Topic continued on next page)

22.2 Mandatory Factors to Consider When Determining Information Resources Requirements *(continued)*

Description of Requirements
(continued)

Relate requirements to mission need. “Mission needs” link the required resource to the mission of the organization.

For example, in the DoD, the acquisition of handheld computers relates to the agency’s:

- Strategic mission of *maintaining armed service personnel, equipped with the necessary tools, in combat-ready status*, and
- Strategic IRM objectives by *ensuring ready information and communications in the field by equipping combat troops with handheld computers*.

For the Internal Revenue Service, the acquisition of telecommunications and software resources for electronic tax return filing relates to the agency’s:

- Strategic mission of collecting taxes from individuals and businesses, and
- Strategic IRM objective of using technology to support the efficient, effective, and timely collection of tax information.

This satisfies requirements of law, policy, and regulation by linking procurements to agency plans.

Establish basis for need in performance terms. Not only must agencies express needs in terms of mission, they must justify acquisitions in terms of:

- Increasing economy and efficiency,
- Meeting new or changed programs requirements, or
- Correcting deficiencies in existing capabilities.

By this means, agencies establish discrete objectives for their acquisitions. Although this FIRMR requirement predates the *Government Performance and Results Act of 1993* (discussed in Chapter 20), it correlates nicely with the law. When agencies establish performance objectives for their procurements, the acquisition can be structured to meet the objectives and contractors can be measured against those objectives.

(Topic continued on next page)

22.2 Mandatory Factors to Consider When Determining Information Resources Requirements *(continued)*

Description of Requirements (continued)

For example, the acquisition of handheld computers could be justified in terms of increasing ground troops' *efficiency* by enabling faster reaction to enemy troop movement; meeting new *program requirements* to remain militarily competitive by employing current technology; and improving the strategic-to-tactical command chain by correcting information-flow *deficiencies*.

When developing performance objectives—sometimes called performance metrics—agencies should consider measures that address *quality, timeliness, and price*. If your acquisition is significant (in terms of dollars or criticality) and will require a delegation of procurement authority, GSA may require this information. You will learn more about this in Chapter 37, *Delegations of Procurement Authority and Procedures for Preparing an Agency Procurement Request (APR)*.

Describe needs functionally. The FIRMR establishes a preference for describing requirements functionally. This means that agencies should describe the functions to be performed or the results to be achieved—rather than the equipment to be acquired or the means of performance. By describing requirements in functional or performance terms, needs are analyzed rather than solutions.

For example, the requirement for handheld computers could be described *functionally* as “light weight handheld devices and capable of real-time transmission of logistical, command, and weather information.” Contrast this to a requirement for “XYZ Model 4.1 Handheld Computers.” More often you will get a combination such as the first one above.

The less agencies specify a solution, the more competitive the procurement is.

Describe needs to obtain full and open competition. This requirement relates to and expands on the requirement to express needs functionally. To illustrate, the functional requirement for “handheld devices weighing two pounds or less and capable of real-time transmission of logistical, command, and weather information” could be restrictive if only one manufacturer made a unit weighing under two pounds.

(Topic continued on next page)

22.2 Mandatory Factors to Consider When Determining Information Resources Requirements *(continued)*

Description of Requirements
(continued)

Agencies must make every effort to develop requirements which are not restrictive *unnecessarily*. After all, there are legitimate reasons to use restrictive specifications, but such use must be justified.

Describe quantitative and qualitative needs. The FIRMR implements the policies of the Office of Federal Procurement Policy (OFPP) by encouraging agencies to describe qualitative as well as quantitative needs. Although quality is normally more important in services procurements, it can apply to equipment buys as well.

For example, the requirement for handheld computers might be expressed in terms of many quantitative measures: number needed, transmission and reception range, and memory size to name a few possibilities. However, the agency might also devise some qualitative measures, such as ease of use or ruggedness as tested in varying circumstances.

Agencies must take care not to prejudice selection with qualitative “needs.” If the qualitative requirements limit or restrict the competitiveness of the solution, the relationship of the requirement to the mission should be clear and the need compelling and justified. Furthermore, if the qualitative requirements are critical or are a part of a large acquisition, the agency should plan for evaluation, selection, acceptance, and performance monitoring after award to assure that qualitative objectives are achieved.

Aggregate requirements. To aggregate requirements means to combine similar requirements into a larger procurement. An agency-wide microcomputer contract is an example of highly aggregated requirements.

Aggregating requirements can result in efficiencies and economies of scale; therefore, agencies are required to consider the possibility and effect of aggregation.

However, agencies should be aware that aggregating requirements can also result in “blended specifications” that fail to meet all users’ needs or provide more capability at a higher cost than low-end users need. Aggregating procurements can also cause delays while large procurements are put together.

This decision should be carefully considered by agency IRM, program, contracting, and executive management.

(continued on next page)

22.2 Mandatory Factors to Consider When Determining Information Resources Requirements *(continued)*

Compatibility-
Limited
Requirements

FIRMR 201-20.103-4

-
- (a) Agencies shall establish compatibility-limited requirements for FIP resources only to the extent necessary to satisfy the needs of the agency.
 - (b) Agencies shall justify compatibility-limited requirements for FIP resources on the basis of at least one of the following:
 - (1) The agency has technical or operational requirements for compatibility when adding resources to, or replacing a portion of, an installed base of resources, and the agency determines that replacing additional portions of the installed base to avoid compatibility-limited requirements is not advantageous to the Government; or
 - (2) The agency determines that the risk and impact of a conversion failure on agency critical mission needs would be so great that acquiring non-compatible resources is not a feasible alternative.

According to FIRMR 201-4.001, a compatibility-limited requirement is *a statement of FIP resources requirements expressed in terms that require the items to be compatible with existing FIP resources.*

Compatibility-limited requirements require a justification, based on one of the two reasons cited above, to comply with the FIRMR. This is a special FIRMR justification requirement: compatibility-limited buys are justified under the FIRMR, not the FAR's "other than full and open competition" requirements.

Note that a compatibility-limited requirement may require a conversion study in accordance with FIRMR 201-20.203-4.

(continued on next page)

22.2 Mandatory Factors to Consider When Determining Information Resources Requirements *(continued)*

Justification for
Specific Make and
Model

FIRMR 201-20.103-5

Technical and requirements personnel shall justify a requirement that can only be met by specific make and model resources in accordance with subpart 201-39.6.

FIRMR 201-4.001 describes a specific make and model specification as a *description of the Government's requirement for FIP resources that is so restrictive that only a particular manufacturer's products will satisfy the Government's needs, regardless of the number of suppliers that may be able to furnish that manufacturer's products.*

Acquisitions that use *specific make and model descriptions* do not provide for full and open competition and must be justified and approved in accordance with FAR 6.303 and 6.304 and FIRMR 201-39.6. The justification is part of the requirements determination dictated by FIRMR 201-20.1.

FIRMR
Prohibition on
Justifying
Outdated
Equipment

FIRMR 201-39.602-1

As you know, FAR 6.302 identifies specific circumstances permitting other than full and open competition. One of these circumstances occurs when there is only one responsible source "in the case of a follow-on contract," as described in FAR 6.302-1(a)(2)(ii). You should be aware that the FIRMR *specifically prohibits* agencies from using this justification "to perpetuate any contract for outdated FIP equipment or for FIP equipment to be used with FIP software that requires general redesign to satisfy mission needs."

Exception to
FIRMR
Prohibition on
Justifying
Outdated
Equipment

FIRMR 201-39.602-2

However, the FIRMR provides an exception that nullifies the prohibition against using FAR 6.302-1(a)(2)(ii) to justify continuing use of outdated FIP resources supported by only one responsible source if the agency's Designated Senior Official "determines that such action will be in the Government's best interest." The FIRMR does *not* indicate that the DSO may delegate this authority.

(continued on next page)

22.2 Mandatory Factors to Consider When Determining Information Resources Requirements *(continued)*

Exception to
Justification for
Certain Multiple
Award Schedule
Buys

FIRMR 201-39.601-2

The FIRMR indicates that the requirement to justify acquisitions citing a specific make and model does *not* apply to certain orders for FIP resources placed against GSA nonmandatory FIP schedule contracts. As you may know, these orders are typically advertised in the *Commerce Business Daily* (CBD) using a specific make and model description. However, this does not mean that the agency considered its requirements noncompetitively.

The FIRMR recognizes this and does not require agencies to justify specific make and model orders off GSA nonmandatory FIP schedule contracts when:

- The statement of work or requirements documentation prepared by the technical and requirements personnel describes requirements with other than a specific make and model specification, notwithstanding the fact that when the synopsis appears in the CBD and the order is placed, a specific make and model is cited, and
- The procedures in FIRMR 201-39.803 concerning use of GSA nonmandatory schedule contracts are followed.

Guidance on competitive requirements appears in:

- the *Competition in Contracting Act* (CICA), (Pub. L. 98-369)
- FAR 7.103 and 7.104

Security
Requirements

FIRMR 201-20.103-6

Agencies shall —

- (a) Identify security and privacy requirements in the requirements analysis;**
- (b) Identify security requirements necessary to protect classified and sensitive information by listing the potential threats and hazards and describing the measures needed to provide protection; and**
- (c) Identify physical and environmental security safeguards.**

(Topic continued on next page)

22.2 Mandatory Factors to Consider When Determining Information Resources Requirements *(continued)*

Security Requirements (continued)

Agencies can go a long way toward protecting FIP resources by planning for the security of FIP resources and privacy of information before the resources are purchased. In addition to preparing broad, agency-wide plans for security and privacy, agencies should plan for security and privacy *specific to an acquisition* in the requirements determination.

Although these requirements are most applicable to large systems buys or contractor-operated facilities contracts, security and privacy concerns can affect most acquisitions. In the case of handheld computers for combat troops, the means of encrypting information to be transmitted and limiting the usefulness of the devices if captured by enemy troops are obvious concerns.

Sources of information about security and privacy include:

- The *Computer Security Act of 1987* (P.L. 100-235)
- The *Privacy Act of 1974* (P.L. 93-579)
- OMB Circular A-130, especially Appendix I, *Federal Agency Responsibilities for Maintaining Records about Individuals*, and Appendix III, *Security of Federal Automated Information Systems*
- OMB Bulletin 88-16, *Guidance for Preparation and Submission of Security Plans for Federal Computer Systems Containing Sensitive Information*
- FAR 24.104, 52.224-1, 52.224-2
- FIRMR 201-21.3, 201.39.1001 and 201-39.5205-5
- FIRMR Bulletin C-22, *Security and privacy protection of Federal information processing (FIP) resources*
- GSA's Office of Technical Assistance (OTA) publication, *Information Technology Installation Security*
- National Institute of Standards and Technology (NIST) publications, such as NIST Special Publication 800-4, *Computer Security Considerations in Federal Procurements*, and NISTIR 4749, *Sample Statement of Work for Federal Computer Security Services: For Use In-House or Contracting Out*

You can reach GSA's OTA on (703) 756-4100 and NIST on (301) 975-2822. If you need to review security and privacy considerations, see Chapter 19, *Computer Security for FIP Resources Acquisitions*.

(continued on next page)

22.2 Mandatory Factors to Consider When Determining Information Resources Requirements *(continued)*

Accessibility
Requirements for
Individuals with
Disabilities

FIRMR 201-20.103-7

-
- (a) **Agencies shall provide equivalent access to electronic office equipment for individuals with disabilities (employees and others who use the agency's electronic office equipment) to the extent both present and future needs for such access are determined by the agency.**
 - (b) **Agencies shall provide telecommunications access to hearing and speech-impaired individuals to the extent both present and future needs for such access are identified in the requirements analysis. Telecommunications access for hearing and speech impaired individuals shall include education and training on the services and features of the GSA relay service.**
 - (1) **Agencies shall publish access numbers for TDD and TDD-related devices in telephone directories and provide such agency numbers to GSA for inclusion in the Federal TDD Directory.**
 - (2) **Agencies shall display in their buildings or offices the standard logo specified by GSA for indicating the presence of TDD or TDD-related equipment.**
 - (c) **Agencies shall consider the guidance contained in FIRMR Bulletins C-8 and C-10 on the subject of accessibility requirements for individuals with disabilities.**

The essence of this requirement is that agencies consider whether the needs of the disabled should be addressed in the acquisition. This would normally be the case when the government is providing services to the general public or when disabled individuals are employed in the offices that will be served by the FIP resources.

If disabled people are part of the group that will use the FIP resources, program and technical personnel should evaluate the resources they require and decide whether to address accessibility resources as part of the overall acquisition or procure them separately.

(Topic continued on next page)

22.2 Mandatory Factors to Consider When Determining Information Resources Requirements *(continued)*

Accessibility
Requirements for
Individuals with
Disabilities
(continued)

For example, if your agency wants to develop and buy kiosks to provide information to the public, the accessibility of the kiosk should be a fundamental part of the analysis. On the other hand, if several employees require special keyboards, monitors, or computers to access an agency database, it might be more efficient and effective to purchase them separately.

Note that some of these provisions deal with management responsibilities (like posting information), not with the content of the requirements analysis.

Deviation

FIRMR 201-3.402

You should be aware that your agency's Designated Senior Official has broad authority to grant individual deviations to the FIRMR for acquisitions "limited solely to providing electronic office equipment accessibility for employees with disabilities." This authority is limited to those FIRMR provisions that:

- Impede or obstruct the acquisition of technology for employees with disabilities,
- Are not specifically prescribed by statute or executive order, and
- Do not change the level of procurement authority delegated from GSA to the agency.

Further information about accessibility is available in:

- FIRMR Bulletin C-8, *Information accessibility for employees with disabilities*
- FIRMR Bulletin C-10, *Telecommunications accessibility for hearing and speech impaired individuals*
- FIRMR Bulletin C-34, *Video Teleconferencing and use of Federal information processing (FIP) audiovisual and telecommunications resources*
- GSA's documents, *Managing Information Resources for Accessibility*, *Access to Information Technology by Users with Disabilities*, and *Managing End User Computing for Users with Disabilities*

In addition, you can contact GSA's *Clearinghouse on Computer Accommodation*, a demonstration and technical resource center, on (202) 501-4906 or TDD (202) 501-2010.

(continued on next page)

22.2 Mandatory Factors to Consider When Determining Information Resources Requirements *(continued)*

Space and Environmental Requirements

FIRMR 201-20.103-8

Agencies shall consider space and environmental factors when conducting the requirements analysis.

This provision requires agencies to consider where the resources will be located and the environment in which they will operate. Factors may include cabling, power, surge protection, fire protection, secured access, air conditioning and humidity control, dust protection, and similar concerns.

In the case of handheld computers for combat use, environmental factors would be significant. The objective would be optimal operation in difficult and widely varying conditions: extreme low and high temperature, low and high light levels, dry and wet conditions, and so forth.

Workload and Related Factors

FIRMR 201-20.103-9

As a minimum, agencies shall document in the requirements analysis the following factors, as applicable:

- (a) **Projected processing, storage, data entry, communications, and support services workload requirements over the system life and how best to address workload uncertainties.**
- (b) **Expandability requirements.**
- (c) **A performance evaluation of currently installed FIP resources.**
- (d) **Contingency requirements for FIP resources whose loss or failure would prevent the agency from performing its mission, or have an adverse effect on the nation.**
- (e) **Other requirements that must be met or constraints that must be considered.**

These requirements most directly relate to systems procurements where current and projected processing workloads must be carefully measured to support the workload over the systems life. For complex acquisitions, projected workload and expandability needs can result in contracts that allow upgrade and improvement over the systems life.

(Topic continued on next page)

22.2 Mandatory Factors to Consider When Determining Information Resources Requirements *(continued)*

Workload and Related Factors (continued)

Nonetheless, it is important to all acquisitions that planners consider if needs for additional quantities, enhanced features or functions, or expansions may arise during the contract life. If such needs are projected, your solicitation can carry options and obtain pricing for them—avoiding the expense and limited competitiveness of mid-contract “fixes.”

In the case of handheld computers, a workload assessment might identify potential future needs for increased quantities, enhanced transmission speeds, or expanded memory capacity.

You should be aware that contingency planning, which could result in your specifying an alternative or back-up computing site, is often done as part of security planning, not workload management.

GSA’s OTA has published a handbook on *Capacity Management* that may be of use to the program and technical staff on your acquisition team.

Records Management Requirements

FIRMR 201-20.103-10

Agencies shall include records management factors in the requirements analysis.

Records management involves the creation, maintenance, use, and disposition of records, including electronic records. These provisions are likely to apply to acquisitions for facilities management, systems development, or support services where contractors create, maintain, use or dispose of Federal records.

These provisions also specifically apply to electronic mail systems as a result of a court case which determined that e-mail transmissions may be Federal records which must be maintained and preserved. The National Archives and Records Administration (NARA) regulations on this subject were not final at the time this text was written. You should be aware, however, that special features or functions may be required in your solicitations for e-mail systems to comply with records management regulations.

(Topic continued on next page)

22.2 Mandatory Factors to Consider When Determining Information Resources Requirements *(continued)*

Records Management Requirements *(continued)*

You should also be aware that FIRM 201-6.002, *Predominant Considerations*, encourages agencies to “ensure that individuals responsible for implementing the agency’s records management programs participate . . . in the determination of the agency’s information needs and FIP resources requirements.”

Further information on records management is in:

- FIRM Part 201-9, *Creation, Maintenance, and Use of Records*
- FIRM Bulletin B-1, *Electronic records management*
- GSA’s guides, *Records Management and the Development of Automated Information Systems* and *Applying Technology to Record Systems—A Media Guideline*
- NARA’s proposed regulation, *Electronic Mail Systems* (published in the *Federal Register* on March 24, 1994)

Energy Efficiency Requirements for Microcomputers

FIRM 201-20.103-11

Energy efficiency requirements for microcomputers.

- (a) **Agencies shall include requirements for energy efficiency in the requirements analysis. At a minimum, agencies shall require that microcomputers, including personal computers, monitors, and printers, acquired by the agency be equipped with the energy efficient low-power standby feature as defined by the Environmental Protection Agency Energy Star computer program, unless the equipment meets the Energy Star requirements at all times. To the extent permitted by law, agencies shall include this specification in all existing contracts, if any additional costs would be offset by the potential energy savings.**
- (b) **Agencies shall consider the guidance contained in FIRM Bulletin C-35 in developing their requirements and for the specific procedure for reporting exempted acquisitions.**

(Topic continued on next page)

22.2 Mandatory Factors to Consider When Determining Information Resources Requirements *(continued)*

Energy Efficiency
Requirements for
Microcomputers
(continued)

- (c) **Agencies shall report annually, by October 18 on acquisitions exempted from this requirement. Reports shall be sent to: GSA, Acquisition Reviews Division (KMA) , 18th and F Streets, NW, Washington, DC 20405.**
- (d) **Agencies shall ensure that Federal users are made aware of the significant economic and environmental benefits of the low energy efficient power standby feature and its aggressive use by including this information in routine computer training courses.**

This newest addition to the requirements of FIRMR 201-20.1 addresses the mandate to include certain energy efficiency requirements in solicitations for personal computers, monitors, and printers. The low-power standby feature powers down idle computers into a “wait state” that uses less electricity. Although the power savings by computer are small, when multiplied by the millions of computers in the government, savings are expected to be very significant.

Although some of these provisions do not deal with developing a requirements analysis, this requirement affects the specifications in your solicitations for personal computers, monitors, and printers. You must include specifications that meet “EPA Energy Star” requirements for energy efficiency or obtain an exemption to the requirement.

Further information is provided in:

- Executive Order 12845, *Requiring Agencies to Purchase Energy Efficient Computer Equipment*, dated April 21, 1993
 - Office of Federal Procurement Policy (OFPP) Policy Letter 92-4, *Procurement of Environmentally-Sound and Energy-Efficient Products and Services*
 - FAR Subpart 23.2, *Energy Conservation*
 - FIRMR Bulletin C-35, *Energy-efficient microcomputers and associated computer equipment*
 - GSA’s guide, *Energy-Efficient Microcomputers: Guidelines on Acquisition, Management, and Use*, which suggests “general specification language.”
-

22.3 Nonmandatory Factors to Consider When Determining Information Resources Requirements

Introduction

As you learned in the previous sections, GSA's requirements for content of a requirements analysis have as much to do with conforming with Federal law and policy as with describing reasonable contents of a requirements analysis. *It is important for you to understand that the content of a requirements analysis is affected as much by the FIP resources to be acquired as by the FIRMR.*

As you have learned, you would not expect to see energy-efficient requirements for microcomputers addressed in a procurement of support services. You would not see justifications for compatibility or specific make and model in a competitive procurement. And you would not expect to see records management requirements in a procurement of printers.

This section addresses some of the other areas that should reasonably be addressed in requirements analyses.

Remember: just because these factors are not mandated by FIRMR 201-20.1 does not necessarily mean that they are unimportant. In fact, in a given FIP resource acquisition, a nonmandatory factor may be critical and require detailed discussion and justification.

Factors or considerations which are not mandated by the FIRMR but may be included in a FIP resource requirements analysis include:

- Description of the current system or resources
 - Goals and objectives
 - Constraints and assumptions
 - Training
 - Implementation
 - Managing competitiveness
-

Description of the current system or resources

Normally, agencies should describe in some detail the current system or resources that will be replaced by the acquisition. This helps to establish the problems that must be corrected by the replacement resources, which in turn help establish program and performance goals. The description of current resources is sometimes included as part of the FIRMR 201-20.103-3 description of requirements section.

(continued on next page)

22.3 Nonmandatory Factors to Consider When Determining Information Resources Requirements *(continued)*

Goals and Objectives

Often, agencies will devote a section of the requirements analysis to identifying goals and objectives for the acquisition and the replacement resources. (Agencies may also organize this information in response to the mandate in FIRMR 201-20.103-3 to describe requirements in terms of performance.)

No matter where it appears, it is essential for agencies to define goals and objectives as performance measures. Although these goals and objectives should focus on both program and resource measures, the more important are program goals. Consider the difference between a requirement to “transmit information at 14,400 bits per second” and a requirement to “decrease from one hour to five minutes the time delay from satellite location of enemy troops to receipt of that information on the battlefield by combat commanders.”

Constraints and Assumptions

Constraints are factors that affect and limit in some way the solutions possible for the acquisition. Constraints may relate to laws or regulations or technological, socio-political, financial, or operational conditions. For example, if Congress mandates a source—such as acquiring supercomputers from American firms—then agencies’ choices are constrained: they must conform to the limitation. Another example of a constraint is the need for compatibility.

Agencies must ensure that the constraints they identify do not artificially restrict or direct a solution. Constraints should support the *competitive* selection of the best system for the problem to be solved. If not, the constraint should be justified.

Assumptions are factors predicted to apply to the program or project that affect the acquisition. For example, the system life and workload projections are common assumptions. Other assumptions might relate to cost, resource, program, or technical factors.

Training

Many types of acquisitions require training the staff before the resources can be effectively used. In fact, for complex systems acquisitions, staff training may be required early in the process to support field tests or performance validations during the acquisition. Such acquisitions should address training as an integral part of the requirements analysis.

(continued on next page)

22.3 Nonmandatory Factors to Consider When Determining Information Resources Requirements *(continued)*

Implementation	<p>Most acquisitions should have an implementation plan developed long before the contract is awarded. One of the most effective ways to ensure this is to address implementation as part of the requirements analysis. This enables the agency to plan for such activities as testing and acceptance, parallel operations, phased installation schedules, and similar events.</p>
Managing competitiveness	<p>During the requirements development phase, agencies should consider means of managing and ensuring competitiveness throughout the systems life. Factors for consideration might include maintaining competitively-priced supply and maintenance sources, measuring contract prices against the movement of commercial prices, price leveraging on multiple contract sources, and preparation for follow-on or replacement contracts.</p>
Other Considerations	<p>GSA's popular acquisition guides include special considerations for the requirements analysis <i>by type of resource</i>. For example, if you are buying systems integration services, GSA suggests that you consider (among other factors) the need for integration with other systems. If you are buying maintenance services, you should consider the length of time your agency can tolerate hardware outages (downtime). And if you are buying FIP support services, you should consider minimum personnel and corporate qualifications.</p> <p>These guides, which follow a standardized outline, normally address requirements analysis in Chapter 5. So if you are participating in or reviewing a requirements analysis, you should refer to these guides. Available on GSA's CD-ROM or through its IRM Reference Center, they now include:</p> <ul style="list-style-type: none"> • <i>A Guide for Acquiring Maintenance Services</i> • <i>A Guide for Acquiring Commercial Software</i> • <i>A Guide for Acquiring Systems Integration Services</i> • <i>A Guide for Acquiring Federal Information Processing Support Services</i> • <i>A Guide for Requirements Analysis and Analysis of Alternatives</i> • <i>Overview Guide - Acquisition of Information Resources</i>

(continued on next page)

22.3 Nonmandatory Factors to Consider When Determining Information Resources Requirements *(continued)*

Determining Applicable Standards

Although FIRMR 201-20.1 does not specifically indicate, the requirements analysis should also identify the standards that apply to the proposed FIP resource acquisition. However, FIRMR 201-20.303(c) provides that technical and requirements personnel are responsible for reviewing each standard to determine its applicability to each requirement

This standards determination should be part of the requirements analysis.

Chapter 33, *Review Standards for FIP Resources Acquisitions*, contains a detailed discussion of the requirement to review the proposed standards for an acquisition.

SUMMARY

In this chapter, you learned how to determine if the mandatory and nonmandatory requirements are included in the requirements analysis. In the next chapter, you will learn about the difference between the FIRMR and the FAR requirements for a justification and approval when other than full and open competition is used

CHAPTER 23

DETERMINING THE SCOPE OF COMPETITION FOR FIP RESOURCES

Chapter Vignette

“Well, one thing is sure, “ said Mark, “at least we do not have to worry about having adequate competition. Every time I look in a newspaper or magazine, there are ads for some new computer maker that I never heard of before.”

“Careful there,” said Marcia. “It is true that there are many new manufacturers of desk top computers. That is one reason prices for desk top models have come down so far in the past several years. But, you must remember that a FIP acquisition may involve much more than just hardware. The most efficient and lowest cost offeror for computers may not necessarily be the best overall source for software, integration, operation, and services. Besides, there may be a serious concern about compatibility with the existing FIP resources, so it is necessary to evaluate competition against the total FIP requirement, not just the hardware.”

Course Learning Objectives

At the end of this chapter, you will be able to:

Overall:

Demonstrate the difference between the FIRMR and FAR requirements for a justification and approval when other than “full and open competition” is used.

Individual:

- 23.1 Apply factors in determining and justifying a requirement which is other than full and open competition.
- 23.2 State and interpret acceptable situations for a compatibility-limited requirement.
- 23.3 State and interpret acceptable situations for a specific make and model.

Chapter Overview

Scope

This chapter discusses the actions that you should take to determine the scope of competition for a FIP resource acquisition. The scope of competition will have a major impact on your acquisition strategy, on the source selection, and the overall FIP resource acquisition.

For example, if the scope of competition is high, with many offerors expected to respond to the solicitation, you may have to plan for a drawn out acquisition. On the other hand, if competition is low, with only a very few qualified offerors expected, then the overall evaluation may proceed more quickly.

However, less competition usually narrows the choices available to the Government, so it is usually in the Government's best interests to ensure maximum competition. One way to do this is to make sure that the requirements are not unnecessarily restrictive. For example, if the requirement is stated for either a "compatibility-limited" requirement, or a "specific make and model" requirement, this can greatly restrict the scope of competition.

Therefore, one of your responsibilities will be to ensure that compatibility-limited requirements and specific make and model requirements are fully justified, documented and approved.

References

In order to thoroughly understand the principles and procedures described in this chapter, you should refer to the following:

- FAR 6.2, 6.303 and 6.304; and 5.2;
- FIRM 201-20.103-3, 201-39.6, 201-39.802 & .803, 201-4.001
- DFAR 206.2 and 206.3

Topics Covered in this Chapter

The major topics covered in this chapter are:

SECTION	TITLE	PAGE
23.1	Factors in Determining and Justifying a Requirement for Other Than Full and Open Competition	23-4
23.2	Acceptable Situations for a Compatibility-Limited Requirement	23-10
23.3	Acceptable Situations for a Specific Make and Model Requirement	23-11

23.1 Factors in Determining and Justifying a Requirement for Other Than Full and Open Competition

Requirement for
Full and Open
Competition

As you should already know, it is usually in the Government's best interests to maximize competition in any acquisition, as well as being required by statute. Full and open competition usually leads to a greater selection of alternatives and makes it easier to select a more advantageous alternative during source selection.

Full and Open
Competition After
Exclusion of
Sources

FAR Subpart 6.2

You may recall that FAR Subpart 6.2 allows for full and open competition AFTER exclusion of sources. It permits an agency to exclude a particular source from a contract action in order to establish or maintain an alternative source for the supplies or services being acquired if that will increase competition, lower costs, or be in the interest of national defense.

In addition, FAR 6.203 provides for set asides for small businesses and labor surplus areas, and FAR 6.204 allows contracting officers to limit competition to eligible 8(a) contractors.

You should be aware that you may also apply any of these limits to full and open competition to the acquisition of FIP resources, as appropriate.

(continued on next page)

23.1 Factors in Determining and Justifying a Requirement for Other Than Full and Open Competition *(continued)*

Other Than Full
and Open
Competition

You may also recall that FAR Subpart 6.3 establishes several exceptions for other than full and open competition. These exceptions are shown in the following table.

EXCEPTIONS TO FULL AND OPEN COMPETITION (FAR SUBPART 6.3)			
	Synopsis Required?	J&A / D&F Required?	
1.	Yes	J&A	There is only one responsible source and no other supplies or services will satisfy agency requirements (FAR 6.302-1);
2.	No	J&A	Unusual and compelling urgency (FAR 6.302-2);
3.	No	J&A	Industrial mobilization; or engineering, developmental or research capability; (FAR 6.302-3);
4.	No	NoT if HCA prepares/Competition Advocate approves	International agreement (FAR 6.302-4);
5.	No	Requirement not authorized, need J&A	When authorized or required by statute (FAR 6.302-5);
6.	Maybe	J&A	National security (FAR 6.302-6); and
7.	No	D&F to Congress	Public interest (FAR 6.302-7).

DFAR Subpart
206.3

DFAR 206.3 largely echoes the guidance in the FAR concerning exceptions to full and open competition, but provides some additional detailed procedures for DoD-related acquisitions.

Note: The FIRMR states that 40 U.S.C. 459(g) will be used instead of 10 U.S.C. for specific make and model justifications for less than full and open requirements.

Exceptions to Full
and Open
Competition

However, there will be times when full and open competition in a FIP resource acquisition is just not possible. For example, an agency may have a valid concern that a new computer must be able to communicate and operate with existing FIP equipment already installed. Or, a new computer may be required to operate with the existing software programs on hand. When this happens, the agency may conclude that it must acquire a FIP resource under conditions of less than full and open competition. This might include either a **“compatibility-limited requirement”** or a **“specific make and model”** requirement.”

23.1 Factors in Determining and Justifying a Requirement for Other Than Full and Open Competition *(continued)*

Exceptions to Full and Open Competition

An agency should conclude that it requires a compatibility-limited specification or a specific make and model specification *only after performing the requirements analysis and thorough market research*. (For a detailed discussion of the requirements analysis, see Chapter 22, “Content of a Requirements Analysis.” For information on market research, see Chapter 16, “Market Research for Acquisition of FIP Resources.”)

You can see that in some cases, it will be fairly easy for an agency to justify other than full and open competition. Examples are when authorized by a statute, or when required for national security.

However, it may be more difficult to provide acceptable justification under the first and second exceptions shown in the preceding table (only one responsible source or unusual or compelling urgency). In such cases, you must check the justification carefully to be sure that there really are no other sources which can provide the supplies or services or that there really is compelling urgency.

In any case, it may be still be possible to proceed with an acquisition that allows for less than full and open competition. However, when this occurs, you must ensure that the process for full justification and approval is followed. And, you must be aware of the FIRMR and FAR requirements for justification and approval.

You should also be aware that there are differences in the FIRMR and FAR requirements for justification and approval.

FAR Requirements for Justification

FAR Part 6

FAR Part 6 explains competition requirements. FAR 6.303-1 and 6.302 explain the restrictions on award of a contract with less than full and open competition. Note that it is possible to proceed with a contract under conditions of less than full and open competition, provided that the contracting officer:

1. Justifies the use of such actions in writing;
 2. Certifies the accuracy and completeness of the justification, and;
 3. Obtains required approval. The approval will depend on the size of the proposed contract.
-

(continued on next page)

23.1 Factors in Determining and Justifying a Requirement for Other Than Full and Open Competition *(continued)*

Contents of the Justification

FAR 6.303-2

Be careful. the justification is not an automatic or “rubber stamp” process. FAR 6.303-2 is specific on the content of a justification under conditions of less than full and open competition. Your justification **MUST** contain the following:

- identification of the agency and the contracting activity;
- nature and/or description of the action being approved;
- supplies or services required (including estimated value);
- identification of the statutory authority permitting other than full and open competition;
- a demonstration that the proposed contractor’s unique qualifications or the nature of the acquisition requires use of the authority cited;
- a description of efforts made to ensure that offers are solicited from as many potential sources as is practicable, including whether a CBD notice was or will be publicized as required by FAR Subpart 5.2 and, if not, which exception under 5.202 applies;
- a determination by the contracting officer that the anticipated cost to the Government will be fair and reasonable (note that this may require you to do a cost analysis before you can make this statement)
- a description of the market survey conducted and the results or a statement of the reasons a market survey was not conducted; and
- any other facts supporting the use of other than full and open competition (note that this may include an explanation of why complete technical data packages were not developed).

FAR Subpart 5.2

(continued on next page)

23.1 Factors in Determining and Justifying a Requirement for Other Than Full and Open Competition *(continued)*

Justification for “Follow-on” Requirements

One of the most frequent reasons given by agencies to justify sole source or other restricted competition acquisitions is the need for a follow-on requirement. In a follow-on requirement, the agency or program office may often justify a sole source acquisition on the grounds that only the incumbent contractor is capable of providing the supplies or services required in an efficient manner. This may happen often in requests for FIP support services.

For example, if an incumbent contractor has been providing computer maintenance services for three years, the agency may attempt to justify a follow-on contract on the grounds that any other contractor would simply take too much time to attain the same levels of efficiency as the incumbent contractor. Or, the agency may argue that a prolonged contracting process may risk unacceptable delays, interruptions, or increased costs in obtaining continuous FIP maintenance services.

There is no doubt that incumbent contractors are usually better positioned to continue a FIP support service without interruption than any competitor. However, as the contract specialist or contracting officer, you should not take such justifications for follow-on awards on their face value. When an agency justifies a follow-on contract on the basis that there is only one acceptable source for the supply or service (the incumbent), make sure that the justification is complete and includes convincing cost data.

If not, explain to the agency that just because the incumbent has provided satisfactory supplies or services in the past is, by itself, not sufficient justification for a follow-on, unless there is really no other acceptable source.

FAR 6.304

FAR 6.304 provides dollar ceilings for the justifications. For example, the contracting officer’s certification is sufficient for contracts up to \$100,000.

For contracts totaling between \$100,000 and \$1,000,000, the contracting officer must obtain the approval of the “competition advocate” of the agency (FAR 6.5). Above \$1,000,000, you should check with your agency’s policies and regulations.

(continued on next page)

23.1 Factors in Determining and Justifying a Requirement for Other Than Full and Open Competition *(continued)*

FIRMR
Requirements for
Justification

FAR 6.303 & 6.304.

FIRMR 201-39.6 explains competition requirements specifically for FIP resources. It emphasizes that an acquisition containing a specific make and model specification does not provide for full and open competition and must be justified and approved in accordance with FAR 6.303 and 6.304.

Orders Against
GSA
Nonmandatory
Schedules

FIRMR 201-39.803

However, when using the GSA nonmandatory FIP schedule contracts, you must follow the provisions of FIRMR 201-39.803.

23.2 Acceptable Situations for a Compatibility-Limited Requirement

Acceptable Situations for a Compatibility- Limited Requirement

FIRMR 201-4.001

In some cases, a requiring agency may submit a compatibility-limited requirement. A compatibility-limited requirement is defined as “*a statement of FIP resources requirements expressed in terms that require the items to be compatible with existing FIP resources*” (FIRMR 201-4.001).

A compatibility-limited requirement is not quite as restrictive as a specific make and model requirement, but it still limits the scope of competition. A compatibility-limited requirement may be submitted when an agency believes that new FIP resources must be compatible with those FIP resources already on hand.

For example, suppose that an agency already has a certain main frame computer in use, connected to 200 terminals or work stations throughout the agency. If the agency procures new terminals, they must interface and be compatible with the existing main frame computer. In such a case, the agency might specify a compatibility-limited requirement for the new terminals.

However, the agency would have to justify the compatibility-limited requirement, and approval is not automatic. The agency would have to explain why the terminals must be compatible with the existing computer.

Unacceptable Situations for a Compatibility- Limited Requirement

In some cases, you will find that the situation clearly does not support a compatibility-limited requirement. If the requirement has not been carefully stated in functional terms, it is very likely that it will not be acceptable.

For example, consider the following language justifying a hypothetical compatibility-limited requirement: “*....All the computers in the agency’s present local area network must be capable of exchanging information (text and document images), so the computers to be acquired in this acquisition must be compatible with the XYZ Model 12....*”

The problem here is that some computers that are not compatible with one another (different operating systems) can still exchange information over a LAN. A thorough requirements analysis of available software should have brought this out.

In this hypothetical case, the justification is not sufficient for a compatibility-limited requirement and you should not proceed with the solicitation unless stronger justification is provided.

23.3 Acceptable Situations for a Specific Make and Model Requirement

Acceptable
Situations for a
Specific Make and
Model
Requirement

FIRMR 201-4.001

In some cases, a requiring agency may submit a specific make and model requirement. A specific make and model specification is defined as “*a description of the Government’s requirements for FIP resources that is so restrictive that only a particular manufacturer’s products will satisfy the Government’s needs, regardless of the number of suppliers that may be able to furnish that manufacturer’s products*” (FIRMR 201-4.001).

Note that there may be a number of suppliers, but only one manufacturer’s products are acceptable. For example, if the agency specifies a certain IBM model computer, it may be available through several suppliers, but only that make and model will be acceptable.

You can see that a specification for a specific make and model is even more restrictive and limits competition even more than a compatibility-limited requirement, so you must be sure that a specification for a specific make and model is appropriate for the situation, and it must be justified.

An acceptable requirement for a specific make and model might occur when only that make and model might meet certain functional requirements. Some requirements for FIP are so specialized that only one manufacturer can possibly meet that requirement.

For example, only one manufacturer may hold a certain patent to produce a certain type of FIP resource. If no one else manufactures that FIP resource, then a specific make and model requirement is easier to justify.

Brand Name or
Equal

In some cases, it may not be so clear that only one manufacturer can produce a unique FIP resource. In such cases, it may NOT be advisable to specify a specific make and model. Instead, it is more acceptable to specify a requirement for “*brand name or equal.*” However, the requirement must be specified in functional terms and must be justified and needs to describe the salient characteristics. A brand name or equal requirement is considered competitive and does not require a J&A.

For example, if you are reasonably sure that only the equipment made by one manufacturer can meet a certain functional requirement, such as computer disk drive speed or storage capacity, you can specify the requirement in language similar to the following:

“The disk drive must meet or exceed the performance characteristics of the ABC Model 577 disk drive, in order to meet operational requirements.”

(continued on next page)

23.3 Acceptable Situations for a Specific Make and Model Requirement

(continued)

Unacceptable
Specification for a
Specific Make and
Model

FIRMR 201-20.103-3 FIRMR 201-20.103-4 40 USC 759(g)

An agency may specify a specific make and model in a situation where it is not appropriate to do so. For example, assume that an agency requires 200 terminals connected to a specific large IBM main frame computer and it concludes that only a certain IBM model terminal is acceptable. This may be a wrong conclusion. It may be that several other manufacturers can also provide terminals that are interoperable with the IBM main frame.

It could be that the agency's requirements analysis was faulty and did not describe the requirements in terms of *functions to be performed*, in accordance with FIRMR 201-20.103-3 and 201-20.103-4 and 40 USC 759(g). 40 USC 759(g) details the specifics for the authority. Or, it could be that initial market research was incomplete and that a specific make and model is not really essential to performing the required function.

You should be aware that sometimes an agency may specify a specific make and model only because the existing equipment already on hand was made by a certain manufacturer and the agency wrongly assumes that only one manufacturer's equipment is interoperable with the existing equipment.

For example, just because all the existing FIP equipment on hand in an agency was made by the XYZ Corporation is NOT sufficient justification to specify new FIP equipment only from XYZ.

Specifying in
Functional Terms

Again, the key is specifying requirements in FUNCTIONAL terms, rather than automatically specifying a specific make and model. Remember that a functional specification is one that is expressed in terms of how the FIP resource (hardware or software) must perform. So, if you are reviewing a requirement that is NOT expressed in functional terms, you should question it unless there is sufficient justification.

For example, an acceptable requirement might state, "The computer must operate at 66 megahertz." A very similar unacceptable requirement might read, "The computer must be a XYZ Model 1100, operating at 66 megahertz."

(continued on next page)

23.3 Acceptable Situations for a Specific Make and Model Requirement

(continued)

Checklist for Determining Scope of Competition Requirements

The following checklist summarizes the actions you should take as a contract specialist to determine the scope of competition for a FIP resource requirement.

	Yes	No
1. Did the requiring agency/program office perform and document a thorough requirements analysis and market research?	_____	_____
2. Is this acquisition appropriate for full and open competition after exclusion of sources (FAR 6.2)?	_____	_____
3. Is this acquisition appropriate for exclusion under exceptions to full and open competition (FAR 6.3)?	_____	_____
4. If a justification is for less than full and open competition, do the contents meet the requirements of FAR 6.303-2?	_____	_____
5. If this justification is for a “follow-on” requirement, does the cost data support the award to the incumbent contractor?	_____	_____
6. If the justification is for an amount above \$100,000 have you obtained the appropriate approval of the “competition advocate?”	_____	_____
7. If this requirement is “compatibility-limited,” does the justification support the requirement?	_____	_____
8. If this requirement is for a “specific make and model,” or “brand name or equal,” does the justification (including technical specifications) support the requirement?	_____	_____
9. For all requirements where less than full and open competition is indicated, are the requirements specified in <i>functional</i> terms?	_____	_____

If the answer to any of the above questions is “No,” you may not be able to proceed with an acquisition under less than full and open competition.

Remember, in most cases, the program office or the requiring agency will (hopefully) have conducted a thorough requirements analysis and market research to identify likely sources, technical qualifications of offerors and information on the scope of the competition. However, it is still your responsibility to review any conclusions about the scope of competition and to determine that any justification for less than full and open competition is adequate.

SUMMARY

In this chapter, you learned about the difference between the FIRMR and the FAR requirements for a justification and approval when other than full and open competition is used. In the next chapter, you will learn about the need to determine whether conversion studies are necessary.

CHAPTER 24

ANALYSIS OF A REQUIREMENTS ANALYSIS

Chapter Vignette

“I keep coming back to the same conclusion,” said Mark, “and that is, I hope the technical experts really know what they are doing when they write the requirements analysis.”

“I hope so too,” Marcia added, “but remember that you must be able to critique the requirements analysis, no matter who wrote it. That means that you must know what is required and know how to analyze against those requirements. Otherwise, your critique will not be effective. Remember, a requirements analysis may be technically accurate and still be unacceptable as an acquisition planning document.”

Course Learning Objectives

At the end of this chapter, you will be able to:

Overall:

Analyze a proposed requirements analysis to determine if the mandatory requirements are included.

Individual:

- 24.1 Explain the key factors required for a successful requirements analysis.
- 24.2 Explain the analytical process required to critique a requirements analysis.
- 24.3 Explain how to determine agency unique-requirements.
- 24.4 Explain how to determine if a RA should be submitted.
- 24.5 Describe the review of a RA.
- 24.6 Explain the process of revision or expansion by the requiring activity.
- 24.7 Demonstrate how to analyze an example of a requirements analysis.

Chapter Overview

Scope

This chapter explains the actions you should take to analyze, or critique, a requirements analysis for a FIP resource acquisition.

Several related chapters explain some of the information that you may need to know about the requirements analysis. For example:

- Chapter 5 discusses the system life cycle
- Chapter 22 presents the mandatory and nonmandatory requirements from the FIRMR
- Chapter 23 explains the determination of the scope of competition
- Chapter 24 discusses the requirements for a conversion study
- Chapter 33 discusses standards for FIP resources acquisitions

This chapter will explain the proper order of requirements analysis coverage, based on the FIRMR. It will demonstrate how to analyze a requirements analysis by suggesting questions you might ask during your review. With this basis, you will understand how to apply the same analytical techniques against agency-unique requirements.

Finally, it will also show you how to recognize a requirements analysis and provide an example of a requirements analysis.

Topics in This Chapter

This chapter includes the following topics:

SECTION	TITLE	PAGE
24.1	Key Factors for a Successful Requirements Analysis	24-5
24.2	Analytical Process: Critiquing the Requirements Analysis	24-9
24.3	Step 1: Determine Agency-Unique Requirements	24-10
24.4	Step 2: Determine if a Requirements Analysis Should be Submitted	24-11
24.5	Step 3: Review the Requirements Analysis	24-13
24.6	Step 4: Advise the Requesting Activity of the Need for Revision or Expansion	24-24
24.7	An Example of a Requirements Analysis for Review	24-25

Chapter Overview *(continued)*

References

In order to understand the topics in this chapter, you may need to refer to:

- FIRMR 201-7.002, 201-20.001, 201-20.1, 201-20.103-1, 201-20.201, 201-20.202
 - FIRMR Bulletins C-5 and C-11
 - GSA’s “A Guide for Requirements Analysis and Analysis of Alternatives”
-

24.1 Key Factors for a Successful Requirements Analysis

Key Factors for Successful Requirements Analysis

Even *before you get started* on the step-by-step procedure for analyzing a requirements analysis, you should understand five key factors that are necessary for success:

- Defining requirements functionally
- Distinguishing between mandatory and desirable features and capabilities
- Establishing assumptions and constraints
- Devoting sufficient resources to the project
- Reassessing requirements periodically

These factors are addressed in the following tables.

Key Factors for Successful Requirements Analysis	
1.	<p><i>Define the requirements functionally.</i> Whenever possible, describe the requirements in functional terms (what the hardware, software, or service will DO — its “capabilities” or “features.”) <i>Avoid specifying a specific make and model or other restriction that will limit competition.</i></p> <p>Instead, describe what the hardware or software has to do.</p> <p>For example, consider the two statements of requirements below:</p> <ol style="list-style-type: none">1. Non-functional: “This agency has a requirement for a Bergen Model 1200 high speed scanner in order to scan and transmit a large volume of full color images each day from the operating field offices to the main archive for storage.”2. Functional: “This agency has a requirement for a high speed color scanner capable of scanning and transmitting an average of 1,000 full color images per day from the operating field offices to the main archive for storage.” <p>The statements are similar, but the first is too restrictive. The second describes the requirement in functional terms and will ensure more competition.</p> <p><i>(Table continued on next page)</i></p>

24.1 Key Factors for a Successful Requirements Analysis *(continued)*

Key Factors for Successful Requirements Analysis *(continued)*

Key Factors for Successful Requirements Analysis <i>(continued)</i>	
2.	<p><i>Distinguish between mandatory and desirable features and capabilities.</i> A mandatory feature or capability is a “must have,” while a desirable feature or capability is a “nice to have.” A desirable feature may be very useful and effective, but is not absolutely essential to the operational requirement or mission of the agency.</p> <p>For example, suppose that you had a requirement for a large electronic printer that must be used in extensive production runs of 10,000 pages or more each day. The requiring agency states the mandatory requirement that the printer must be capable of producing 10,000 pages per day. However, the agency also requires that the printer must automatically adjust to different sizes of paper without human intervention.</p> <p>The second requirement might really be a “desirable” (NOT mandatory) requirement that greatly increases price and restricts competition, unless the agency can justify it. You would not <i>know</i> if the second requirement were desirable unless you asked questions.</p> <p>If you are not certain that a stated requirement is really mandatory, be sure to ask.</p>
3.	<p><i>Identify and agree on assumptions and constraints.</i> Remember, EVERY requirement is based on some assumptions and some constraints. An assumption is an informed guess about the future. If it is reasonable, it may be very useful. If it is NOT reasonable, it may be useless, or even harmful, and greatly increase the cost of the acquisition.</p> <p>A <i>constraint</i> is an informed guess about the limits or restrictions that apply to the acquisition. For example, one constraint is always cost. Common constraints include:</p> <ul style="list-style-type: none"> • Cost — how much money is expected to be available to support this acquisition; • Time — the latest date when the new hardware, software or service must be available; • Technical limits — the level of expertise available to support and implement the acquisition, integration requirements, space available, and other technical limits; and • Organizational and political constraints. <p style="text-align: right;"><i>(Key Factor 3 continued on next page)</i></p>

24.1 Key Factors for a Successful Requirements Analysis *(continued)*

Key Factors for Successful Requirements Analysis (continued)

Key Factors for Successful Requirements Analysis <i>(continued)</i>	
3. (cont.)	<p>The requirements analysis is done very early in the acquisition life cycle, so assumptions and constraints that were valid and reasonable when new, may look very foolish later when conditions change.</p> <p>For example, imagine a situation where an agency is acquiring a complex supercomputer, but does not include a requirement for training. This might be done because the agency believes it has sufficient trained personnel on hand and can absorb the new hardware without outside assistance.</p> <p>This assumption might be correct, but if it is not, there can be a great deal of difficulty and added cost later on. Therefore, the assumption that no training is needed should be explained.</p> <p>It is crucial that the assumptions and constraints be carefully described and documented so others can fully understand them later.</p> <p><i>Of course, it is possible that an assumption or constraint may not be realistic or reasonable, so you should review them carefully, especially for their effect on competition. If you have doubts, you might even obtain a formal, written memorandum of understanding on the explicit assumptions and constraints.</i></p>
4.	<p><i>Devote the appropriate level of effort to the requirements analysis. If the FIP resource acquisition will be a large purchase, your agency should devote a considerable amount of personnel, time and energy to the development of the requirements analysis. If this has not been done, you may find the acquisition to be at risk of failure.</i></p> <p><i>(Table continued on next page)</i></p>

24.1 Key Factors for a Successful Requirements Analysis *(continued)*

Key Factors for Successful Requirements Analysis (continued)

Key Factors for Successful Requirements Analysis <i>(continued)</i>	
5.	<p><i>Reassess requirements periodically.</i> Finally, the last factor is to make sure your agency reassesses requirements periodically. Requirements can change very quickly as a result of new missions, new responsibilities, reorganizations, new technologies or new capabilities. Remember, a complex FIP resource acquisition can take up to two years or more from start to finish. Much can happen during that time that could change the original requirement.</p> <p>For example, when an original requirement is first generated, it is probably written to acquire the latest technology available. But FIP technology advances very quickly, and two years is a very long time. It is very possible that a requirement written two years ago for almost any FIP resource acquisition will be outdated.</p> <p>For this reason, you should make sure that the requirements are periodically reviewed by technical personnel to be certain they are still current and valid. In fact, they should be reviewed at least once every six months. If an important event, such a reorganization occurs, or if there is a change in the agency mission, it is a good idea to review the requirement to see if it is still valid.</p>

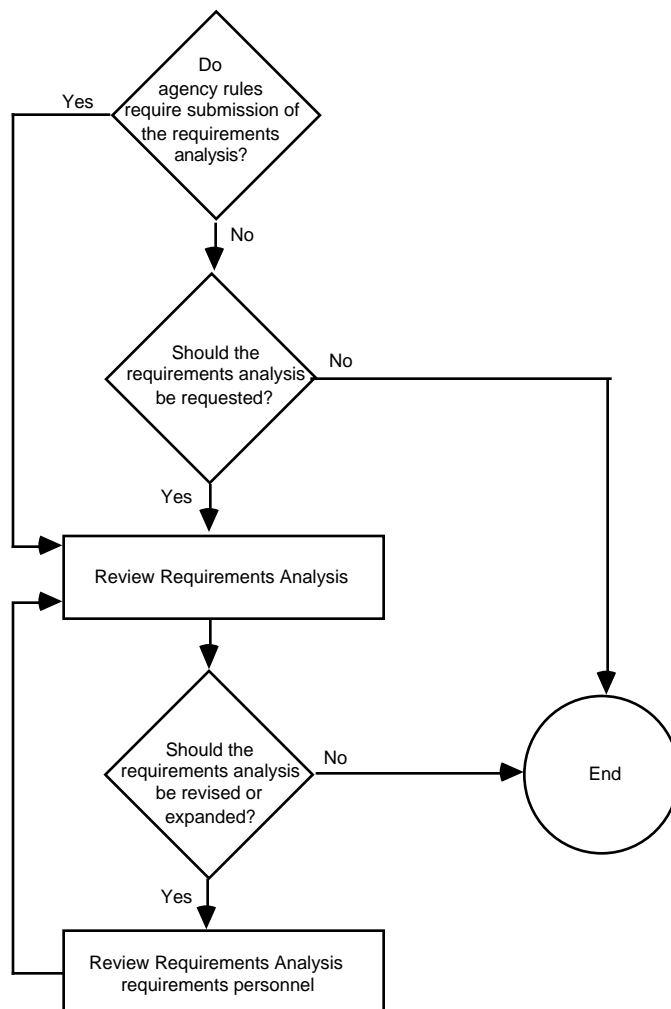
24.2 Analytical Process: Critiquing the Requirements Analysis

Analytical Process

The process of critiquing a requirements analysis involves four primary steps:

- Determine if there are any agency-unique requirements for the requirements analysis.
- Determine if the requirements analysis has been or should be submitted.
- Review the requirements analysis.
- Advise the requiring activity if the requirements analysis should be revised or expanded.

The flow chart below illustrates the decision process.



24.3 Step 1: Determine Agency-Unique Requirements

Agency Rules

As you learned in Chapter 15, Federal agencies often have their own rules about what must be included in requirements analyses. *Such agency-unique rules are in addition to those established by the FIRMR.*

For example, one agency specifically requires its components to address the IRM goals and strategies of its five year information technology plan. It also specifically requires its components to specify the Application Portability Profile standard or cite the waiver authority.

It is important for you to know if your agency has set additional rules for the content of the requirements analysis. Keep in mind that this chapter addresses the FIRMR requirements as well as other suggested considerations: you must add your agency's rules to the checklists and notes in this chapter.

24.4 Step 2: Determine if a Requirements Analysis Should be Submitted

Submission Requirements

In addition to rules about the content of a requirements analysis, your agency may specify procedures for submission, review, approval, and dissemination of requirements analyses.

For example, some agencies require, for acquisitions above a certain threshold, that a copy of the requirements analysis be provided to the IRM and contracting offices. Others require that components certify that the requirements analysis has been completed and provide the date of approval of the requirements analysis. Some agencies have no internal requirements at all.

You need to be familiar with what your agency requires, not only in terms of content, but also in terms of submission, approval, and dissemination of the requirements analysis.

Special Requests for Submission

Even if your agency does not require by rule or procedure the submission of a requirements analysis, the contracting officer normally has sufficient authority to request a copy. When would this be wise?

Contracting officers are responsible under the law for acquiring only those resources that will satisfy agency needs in a competitive and cost-effective manner. The contracting officer may need to review the requirements analysis to be sure he or she is fulfilling these responsibilities. Since the acquisition strategy depends a great deal on the program office's determination of need and justifications, there are times when the requirements analysis should be reviewed and held in the contracting activity's files.

Contracting offices should consider requesting a copy of the requirements analysis for review when a program or an acquisition:

- Does not make sense,
- Is unusually critical to the agency's mission,
- Involves large sums of money,
- Is unusually restrictive of competition,
- Is of compelling interest to private firms, or
- Has a history of protests.

Keep in mind: If the contracting office requests a copy, the contracting office is essentially obligated to review it.

(continued on next page)

24.4 Step 2: Determine if a Requirements Analysis Should be Submitted

(continued)

How to Recognize
a Requirements
Analysis

A requirements analysis can take many forms. It may take the form of a one-page justification attached to a requisition or a several hundred page document formally entitled “Requirements Analysis.” It may be called a requirements analysis, requirements study, statement of requirements, or needs determination. The only common element among such documents may be your determination that *the document describes the need*.

24.5 Review the Requirements Analysis

Reviewing a Requirements Analysis

As you learned in Chapter 15, you cannot automatically rely on the requiring activity or technical staff to conduct a thorough requirements analysis without some guidance. Sometimes requirements personnel will do an excellent job defining the technical needs but will overlook the FIRMR's requirements to address such areas as accessibility and records management.

Therefore, when you receive a requirements analysis — whether as part of a standard purchase request, after special request by the contracting office, or as a result of participation on an agency acquisition team — *it is your responsibility to review the document.*

Understanding the Analytical Process

It is important for you to understand that analysis means the methodical application of independent thought to a problem or process, its elements, their relationships, and consequences. *Inherent in the nature of analysis is the lack of comprehensive and set rules that dictate decisions.*

For example, suppose you receive a request from an agency component to contract for support services. Your review of the requirements analysis reveals that the support services would be used to develop a system to transmit information over an existing agency network. However, with your knowledge of your agency's strategic plan and your contracting office's three-year work plan, you know that headquarters plans to replace the existing agency network in twelve months. Because of this fact, *the requirements analysis is deficient.* It fails to address an important factor relevant to planning and specifying the support services acquisition.

This deficiency would exist even if the agency component had followed the FIRMR to the letter.

You need to understand that analyzing a requirements analysis requires first that you review it against the requirements of the FIRMR *and* your agency's requirements. You also analyze a requirements analysis to determine if it appears to be a clear and comprehensive explanation of a need. And you also need to consider it in light of all other related information of which you are aware.

(Topic continued on next page)

24.5 Review the Requirements Analysis *(continued)*

Understanding the
Analytical Process
(continued)

You must understand how broad an analysis of a requirements analysis can be so that you can exercise independent thought and judgment. *Although this chapter provides checklists and questions, it is imperative for you to understand that they are an aid to—not a replacement of—your analysis.*

Review for
Overall Content

Before getting into the details of the requirements analysis, you should complete a quick review of the overall content of the requirements analysis. You first want to understand how the document is organized and make a preliminary assessment of how complete the requirements analysis is.

As you learned in Chapter 16, the FIRMR’s “mandatory” requirements are only *mandatory to the extent that they apply to your acquisition*. For example, the requirement to consider energy efficiency applies only to requirements analyses that will result, in whole or in part, in the purchase of microcomputers. As another example, an acquisition of FIP supplies would be unlikely to require consideration of security.

(Topic continued on next page)

24.5 Review the Requirements Analysis *(continued)*

Review for
Overall Content
(continued)

So the first step in your analysis should be to review what is included in the requirements analysis against what you think should be included. You can use a matrix such as the following, sorted by type of FIP resource, as a tool in your analysis. Remember to add your agency's requirements to your worksheets. Remember also to use the matrix information as an aid to your review—not as strict rules for content.

FIRMR: Content of Requirements Analyses	FIP Systems	FIP Equipment	FIP Software	FIP Services	FIP Support Services	FIP Maintenance	FIP Supplies
Information Needs	A	MA	MA	A	A	MNA	NA
System Life	A	A	A	A	A	A	MA
Description	A	A	A	A	A	A	A
Compatibility Limited Justification	MA	MA	MA	MA	MNA	MNA	MA
Specific Make and Model Justification	MA	MA	MA	MA	MNA	MNA	MA
Security	A	A	MA	A	MA	MA	NA
Accessibility	MA	MA	MA	MNA	MA	NA	NA
Space and Environmental	A	A	MA	MA	A	A	MA
Workload	A	A	MA	A	A	MA	NA
Records Management	A	MA	MA	MA	MA	NA	NA
Energy Efficiency	AM	AM	MA	NA	NA	NA	NA
Standards	A	A	A	MA	MA	NA	MA

Key: A = Applies, AM = Applies only for microcomputers, MA = May Apply, MNA = May Not Apply, NA = Does Not Apply

(continued on next page)

24.5 Review the Requirements Analysis *(continued)*

Example of a Content Review

To use this chart, look under the column or columns of the type of FIP resources you will be buying. Using the example of the handheld computers, you would refer to the FIP equipment column. This would help you determine that you should find information in the requirements analysis related to systems life, description of need, security, space and environmental, and workload factors.

You next consider factors which may apply for equipment: information needs, accessibility, and records management. After thinking about it, you decide that the requirements analysis should address information needs, such as receiving and displaying information about troop deployment, enemy positions, weather information, and command information. You decide, however, that records management factors do not apply to the handheld devices: instead, records management is an issue for the command and control computers (not part of your acquisition) that transmit the information to the handheld computers. You then make a note to check with the program and requirements staff about accessibility. Will the devices be used for emergency calls by wounded soldiers?

Finally, you confirm that since the acquisition will be competitive, the requirements analysis need not provide justifications for compatibility, specific make and model, or other than full and open competition. Nor, you discover, does the requirements analysis indicate any overly restrictive requirements which should be justified.

You can see from this example that determining what should be included in a requirements analysis requires some thought. *Remember: do not rely entirely on the matrix to make your decisions.*

Summarize Initial Conclusions in a Checklist

After your initial review of the requirements analysis, you should record your preliminary determinations. For example, you might complete a checklist like the one on page 24-23. These will then be checked in your detailed review.

(continued on next page)

24.5 Review the Requirements Analysis *(continued)*

Review for Detail

After you have determined what should be included and made some preliminary assessments of what is included, you need to review the document in detail. You may find that information you thought was omitted is actually in the document under a different heading. You also are likely to develop new questions.

In all you read, you should consider:

- Do I understand what the requiring activity needs?
- Do I understand why the requiring activity needs it?
- Is the information clear, complete, and convincing?

The following sections address the content of the requirements analysis, suggesting questions that you might ask yourself during your review. Remember to use the questions as an aid, not as a complete checklist. Remember also to add questions based on your agency's requirements or on your knowledge and understanding. If you need to review the FIRM's requirements, see Chapter 16, "Requirements of a Requirements Analysis."

Information Needs

FIRM 201-20.103-1

Applicability: Does the procurement involve the collection, manipulation, use, transmission, or dissemination of information?

Representative Questions:

- Does the requirements analysis address information needs?
- Does it address information format, media, quantity, integrity, security, and timeliness?
- What information is currently received?
- What additional information is needed?
- What are the sources of the information?
- What information is provided to public and private sector users?
- Where is the information needed?
- What additional information should be provided?
- How is the information interrelated or related to information outside the system?

(Representative questions continued on next page)

24.5 Review the Requirements Analysis *(continued)*

Information Needs (continued)

- How will the information be acquired and disbursed?
 - How much information is needed?
 - How will the information be maintained and its security, confidentiality, accuracy, and completeness assured?
 - How timely must the information be?
 - How must the information be formatted?
 - Are records retention and disposition needs addressed?
 - Are electronic records addressed?
 - Are contractor's responsibilities for providing information clear?
 - If information will be collected from the public, has the agency obtained approval from OMB?
-

System Life

FIRMR 201-20.103-2

Applicability: Applies to all acquisitions, with the possible exception of a procurement for supplies. Note that for support services acquisitions, the "systems" life may be the contract life.

Representative Questions:

- Has the agency established a system life?
 - Is the system life reasonable?
 - Does the system life affect competitiveness?
 - If the system life is more than five years or less than two years, is there a good reason for it?
-

(continued on next page)

24.5 Review the Requirements Analysis *(continued)*

Description of
Needs

FIRMR 201-20.103-3

Applicability: Applies to all acquisitions.

Representative Questions:

- Is the relationship of the requirement to the mission clear?
- Is the need established based on increased economy and efficiency, new or changed program requirements, or deficiencies in current capabilities?
- Are requirements described functionally to the extent possible?
- Are requirements written in terms of performance? Does the agency describe what is needed rather than how to meet the need?
- Are there any restrictive requirements? Are they justified?
- Can the requirements be met using full and open competition? If not, is other than full and open competition justified as required by FAR Part 6?
- Are both quantitative and qualitative requirements addressed?
- Is the basis for qualitative requirements clear and related to the mission?
- Has the requiring agency considered aggregating requirements?
- Has the agency identified the standards which apply?
- Does the requirements analysis clearly answer:
 - What is our function and mission?
 - What is the shortfall in meeting our function and mission?
 - What are our strategic objectives?
 - What is the current system and how effective is it?
 - What resources do we need?
 - What are our problems?
 - What do we need in the future?

(continued on next page)

24.5 Review the Requirements Analysis *(continued)*

Compatibility-Limited Requirements

FIRMR 201-20.103-4

Applicability: Does the procurement specify compatibility with existing resources?

Representative Questions:

- Can a less restrictive requirement be used?
- Is the use of a compatibility-limited requirement justified in accordance with FIRMR 201-20.103-4?
- Is the agency required under the provisions of FIRMR 201-20.203-4 to complete a conversion study? Has the conversion study been completed?

[Remember to review Chapters 17 and 19 if you're unsure how to evaluate this area.]

Specific Make and Model Requirements

FIRMR 201-20.103-5

Applicability: Does the procurement require a specific make and model resource?

Representative Questions:

- Can a less restrictive requirement be used?
- Is the use of a specific make and model description justified in accordance with FIRMR 201-39.6 and FAR 6.303 and 6.304?

[Remember to review Chapter 17 if you're unsure how to evaluate this area.]

Security and Privacy

FIRMR 201-20.103-6

Applicability: Does the procurement involve equipment or information that must be protected from damage, loss, exposure, or unauthorized access?

Representative Questions:

- Does the requirements analysis address security and privacy?
- Are physical and environmental security safeguards addressed?
- Will contractor personnel have access to sensitive information?
- Will contractor personnel be responsible for or have the use of government property?

(continued on next page)

24.5 Review the Requirements Analysis *(continued)*

Accessibility Requirements

FIRMR 201-20.103-7

Applicability: Will the resources be used by handicapped staff? Will the resources will used by the public?

Representative Question:

- Does the requirements analysis address accessibility for individuals with handicaps?

Space and Environmental Needs

FIRMR 201-20.103-8

Applicability: Most procurements require consideration of space and environmental factors.

Representative Questions:

- Does the requirements analysis address the space in which resources will operate?
- Will resources require operating conditions beyond those in a normal office environment?
- Have such factors as cabling, power, surge protection, fire protection, secured access, air conditioning and humidity control, and dust protection been addressed?
- Is it clear whether contractors or the government will provide space?

Workload and Related Factors

FIRMR 201-20.103-9

Applicability: Could the acquisition be affected by a change in workload?

Representative Questions:

- Does the requirements analysis address workload over the systems life?
- Has the requiring activity done an effective job measuring current performance and projecting future needs?
- Will options, upgrades, expansions, or increases be required under the contract to meet future increases in workload?
- Does the requirements analysis address all system areas—such as processing speed, storage, data entry, communications, and output devices—that could reach saturation?

(Representative questions continued on next page)

24.5 Review the Requirements Analysis *(continued)*

Workload and Related Factors (continued)

- Have the effects on contractors of changes in workload been analyzed?
 - Has the effect of lost resources been analyzed and contingency plans developed? [Note that this might be addressed as part of security.]
 - Should options, upgrades, expansions, or increases be solicited and priced?
-

Records Management

FIRMR 201-201.103-10

Applicability: Does the procurement involve the collection, manipulation, use, transmission, or dissemination of information?

Representative Questions:

- Does the requirements analysis address records management for electronic and paper information?
 - Did records management personnel participate in the requirements determination?
 - Has the agency determined how, when, and in what form official agency records will be retained?
 - Will agency functions and decisions be properly documented?
-

Energy Efficiency Requirements

FIRMR 201-201.103-11

Applicability: Does the procurement involve the acquisition of microcomputers, monitors, or printers?

Representative Questions:

- Have energy-efficiency needs been identified?
 - Has use of the low energy efficient power standby feature been addressed in training courses?
-

(continued on next page)

24.5 Review the Requirements Analysis *(continued)*

Review Checklist

The following review checklist may be used as an aid to your review. Remember to add agency-unique requirements to your version of this matrix. Also remember to use independent judgment, applying your knowledge of regulations, procedures, plans, and all other relevant factors.

REVIEW CHECKLIST: REQUIREMENTS ANALYSIS			
FIRMR Content Requirements	Included	Not Included	Does Not Apply
Is the requirement described?			
In terms of mission needs?			
In terms of functional and performance needs?			
In terms of full and open competition?			
Does the requirements analysis address:			
Information needs?			
Systems Life?			
Description of needs, including:			
Quantitative and qualitative requirements?			
Aggregating requirements?			
Security and privacy?			
Accessibility requirements for the disabled?			
Space and environment?			
Workload, current and projected, including:			
Contingency requirements?			
Records management?			
Energy efficiency for microcomputer?			
Standards?			
Are requirements for:			
Specific make and model justified?			
Compatibility-limited requirements justified?			
Other than full and open competition justified?			

24.6 Advise the Requiring Activity of the Need for Revision or Expansion

Advise the Requiring Activity

If your review of the requirements analysis indicates the need for revision or expansion, you need to advise the requiring activity. Depending on your agency's procedures and your relationship with the requiring activity, this contact may be either formal or informal.

For example, in the review of the handheld computers, you might be able to determine by a quick phone call that there is no requirement for accessibility for the disabled. On the other hand, if the agency has not addressed security, that would be a major omission that the contracting office might have to address formally.

Keep in mind that the requiring activity may not have addressed these areas because they do not know about the FIRMR requirements. Also keep in mind that the required information may be in other documents, such as a Security Plan. In this case, reference to the other documents may be sufficient.

24.7 An Example of a Requirements Analysis for Review

Example

As you know, the content of a requirements analysis depends on the specific requirements of that acquisition. The following example concerns a hypothetical requirement for a computer imaging system to store and retrieve security-related documents for an agency security office.

As you read this example, think of any information that was left out or for which you would request clarification.

REQUIREMENTS ANALYSIS

Agency Mission

The mission of Desert View Laboratory is to conduct classified research projects. In the past forty years, it has conducted major projects for the Departments of Defense and Energy. However, with the end of the Cold War, the laboratory has been directed by executive order to investigate and propose scientific research projects which have greater application to civilian uses.

One result of this mandate has been increased access to the laboratory by non-defense private sector companies to explore and discuss research projects. This has greatly increased the number of visitors each year.

Major Work Products

The major work products produced at Desert View are studies, including feasibility studies, and test results, for “cutting edge” technical projects that require the latest and most sophisticated scientific equipment not generally available elsewhere. Most projects involve electronics, radiation, exotic new materials and new chemical processes.

The equipment includes extremely powerful computers and other state-of-the-art scientific equipment. Although the technical labs and functions are very highly automated, some administrative functions are not necessarily automated to the degree found in other Government agencies. Some administrative functions, including security record-keeping, are still largely manual. For example, individual visitor records are still logged by hand into a manual record.

This was not a problem in the past, because there were relatively few visitors authorized access. However, under the new visitation rules, the number of visitor records being processed has increased by more than 1,000 percent in the past year and is expected to grow even more.

(Example continued on next page)

24.7 An Example of a Requirements Analysis for Review *(continued)*

Information Flows

This requirements analysis concerns only the unclassified aspects of the security record-keeping function. The information must consist of a copy of the visit request, with attached approval and photographic image. Information on visitors must flow as follows:

- from the Desert View security office, to the Department of Defense (Washington, DC), and to the agency headquarters in Almagordo, NM.
- to the Desert View security office, from those locations.

Description of Current System

Presently, the visit request arrives in paper (letter) format, which must be processed (approved or denied) within three working days. The visit request is processed entirely at the Desert View security office. An approval/denial form (DV Form S-1) is then sent to the requester. A copy of the visit request is also sent by mail to the agency headquarters.

Because of the highly classified nature of the lab, each visitor who is not on the current access roster must apply separately before each visit. Each request, with record of disposition, must then be filed at the security office. Each time a request is received, the DV Form(s) on record for that individual visitor must be retrieved from the files and the master log of visitors updated. Under past conditions (before the executive order), this normally required approximately five minutes for each visitor. All visitor files were easily maintained in two standard four-drawer filing cabinets.

The personnel maintaining these files include two GS-9 clerks and one GS-12 supervisor. Their limited experience with computers consists of the ability to do word processing of unclassified business type letters.

The current system described above has not been effective in coping with the growing number of new visitors. Processing and master logging times for individual visit requests have grown from approximately five minutes per request two years ago, to more than ten minutes per request in January of this year. The number of filing cabinets has expanded from two to twenty and is expected to grow further.

No additional personnel have been authorized. As a result, it has been necessary to authorize more overtime each month, to cope with the growing backlog of requests. During the past year, it was necessary to authorize 612 hours of overtime to accomplish processing, filing and retrieval of the required records. During vacation or other reduced staffing periods, the backlog grows quickly and efficiency and reliability decline. When only one or two of the three staffers are available, the error rate also grows and some records are misfiled, requiring added time later to locate and refile.

(Example continued on next page)

24.7 An Example of a Requirements Analysis for Review *(continued)*

Opportunity for New Automation

The advent of commercially available automation systems for processing and archiving this type of information offers great potential for increasing efficiency and effectiveness, without an increase in staffing. For example, a review of document imaging and archiving systems recently developed for insurance claims offices shows that similar equipment (hardware and software) appear to be capable of greatly increasing efficiency. The insurance industry increasingly uses such new equipment to process, store and electronically transmit multipage claim forms, complete with an electronic image of the damaged object (house or car). Retrieval time from electronic files within the office is less than ten seconds per request.

Proposed Automation Project

It is therefore proposed that a security identification and filing system, similar in concept to the one used by the insurance industry, be established to allow personnel at the Mountain View security office to process, store, electronically transmit and retrieve visitor requests and records.

The commercially available systems require:

- a desktop or work station with at least 24 megabytes of random access memory (RAM), at least 1.1 gigabytes of read only memory (ROM) and, preferably, an operating system that operates at a speed of at least 66 megahertz. Such systems are offered by several manufacturers at prices ranging from \$5,800 to \$7,700 but are not currently available on the GSA schedules. At least two terminals (one backup) are recommended for each of the three sites (Desert View, Washington, and Almagordo, NM).
- an electronic camera for entering images digitally in black and white or color. These must be compatible with the type of computer or work station selected and are offered for approximately \$4,000.
- an electronic scanner for scanning and entering paper copies of documents (texts and images) into the computer memory. Copies are available from various offerors at prices ranging from \$2,000 to \$9,000.
- a commercial quality laser printer, capable of printing at least 10 pages per minute (black and white) or 1 page per minute (color). Such printers are currently available on the current GSA schedules for \$3,000.
- training for three persons, estimated at \$500 per person, based on industry experience, at Desert View and one person at each of the other two sites.
- cabling and system integration. These costs are estimated by the commercial (insurance industry) sources to be approximately \$500 per terminal.
- maintenance costs (per terminal) based on commercial experience are \$300 per year.
- documentation (including manuals) is estimated to be \$500.
- data and application conversion is estimated at 300 hours of labor X \$50 equals \$15,000.
- communications/transmission costs are estimated (based on industry sources) to be \$15,000 per year, primarily for data (facsimile) transmission.

SUMMARY

In this chapter, you learned how to analyze a requirements analysis to determine if the mandatory and nonmandatory requirements are included. In the next chapter you will learn about the analysis of alternatives and its role in the acquisition process.

CHAPTER 25

DETERMINING IF CONVERSION STUDIES ARE NECESSARY

Chapter Vignette

“What about compatibility?” Mark asked. “Suppose we buy some hardware or software which promises to do everything but then we find out that it does not work with our original hardware or software? I imagine that can cause a lot of red faces.”

“Absolutely,” said Marcia, “and that is why you have to determine if conversion studies will be needed. If you buy hardware, you must consider whether it will run existing software, and if you buy software, you have to think about whether it will run on the existing hardware. In some cases, the answer is an easy ‘yes’ or ‘no,’ but in other cases, the requiring agency must also decide whether to spend money on conversion of existing software. Of course, to know that, you must first know if a conversion study is needed”

Course Learning Objectives

At the end of this chapter, you will be able to:

Overall:

Predict whether to require the ability to run existing software without modification, and, if not, make the cost of converting existing software a factor in selection, whether for all software or for selected software.

Individual:

- 25.1 Define when a conversion study is required.
- 25.2 Predict the restrictiveness of the requirement.

Chapter Overview

Scope

This chapter presents the information you will need to determine whether a conversion study is needed for a proposed FIP resource acquisition. It will explain how to predict the restrictiveness of a requirement and how, from the initial determination, to determine the appropriateness of a compatibility-limited requirement and its effect on the acquisition.

It will provide examples of buying original or replacement hardware and in buying replacement hardware, ability to run existing software without modification; and how to determine if the cost of converting existing software should be used as a factor in source selection.

Usually in a large scale acquisition, the requiring activity will already have conducted a thorough conversion study. Sometimes the conversion study will be used to support a compatibility-limited requirement and may be submitted as part of the request for an Agency Procurement Request (APR). However, you may find that sometimes, a requiring activity may generate a requirement for hardware or software without consideration as to whether a conversion study is required. This is more often the case with software.

Changes in software occur very frequently, sometimes every year, and there are many proprietary features that make some versions of software fully or partially incompatible with the existing version(s) which the Government may already have.

When this happens, there may be a hidden cost of conversion which is not fully considered by the requiring activity.

Keep in mind that an agency need not be concerned about conversion of ALL its software. It may be that only a small percentage of the total software cannot be converted, but that small amount of selected software may be so important that it seriously affects the agency's mission performance.

For this reason, you must understand when a conversion study may be needed in the overall acquisition process and in development of an APR package.

Chapter Overview *(continued)*

Topics in This Chapter

This chapter includes the following topics:

SECTION	TITLE	PAGE
25.1	When Conversion Studies Are Required	25-5
25.2	Predicting Restrictiveness of a Requirement	25-9

References

You should have the following references available to understand this chapter:

- FIRMR 201-20.203-4
 - FIRMR Bulletin C-13, *Conversion of Federal Information Processing (FIP) Resources*
-

25.1 When Conversion Studies Are Required

What is a
“Conversion
Study?”

A *conversion study* is a study performed by technical personnel to determine whether existing software will operate and be compatible with another FIP resource to be acquired, such as new FIP hardware or new software.

A *software conversion* is the actual modification or altering of software programs and data, such as computer files, so that they can be used on the newly acquired system.

When a
Conversion Study
is Required

FIRMR 201-20.203-4 requires that Federal agencies perform a conversion study for ALL acquisitions for FIP resources, EXCEPT for:

- initial acquisitions where no FIP resources exist **OR**
- acquiring FIP equipment peripherals only (examples are printers or scanners) **OR**
- exercising a purchase option under a leasing agreement.

So, you can be pretty certain that if an agency already has FIP resources on hand, it will be required to perform a conversion study and submit the results as part of the APR package if it requests a DPA.

In other words, any time an agency changes FIP hardware or software, it probably requires a conversion study. However, you should be especially watchful for a conversion study when an agency:

- intends to modify the operating software in the existing system
- replaces one set of software with software from a different manufacturer or vendor
- keep old records or files developed with previous software and occasionally refer to it
- uses software that it developed or modified “in house”
- intends to buy original or replacement hardware and it is not certain whether existing software will run on the new hardware without extensive modification

The major EXCEPTION, of course, occurs when an agency already is using a leasing agreement with an option to purchase (LWOP). In that case, you do NOT require a conversion study.

25.1 When Conversion Studies Are Required *(continued)*

Importance of a Conversion Study

A conversion study is important because it determines whether an “older” software package will operate successfully with the new commercial software to accomplish one or more of the agency’s missions, such as payroll or personnel maintenance. You can see that an agency might have to redo thousands of files if it acquired new computers that could not “read” older files.

In addition to its importance in the acquisition process, a conversion study is also important in the development and submission of an Agency Procurement Request Package for approval by the GSA.

Failure to accomplish a conversion study can be very serious. For example, consider a case when a payroll department changes to new software and finds that it cannot read the existing pay records for all employees.

When is a Conversion Study Done?

A conversion study is completed before the completion of the Analysis of Alternatives and after the requirements analysis. If software conversion is identified as a possible requirement early on in the requirements analysis during acquisition planning, much time can be saved in the acquisition process. It can be important to start early, because a conversion study can be very complex for a large scale acquisition.

(Note - for a detailed discussion of the Analysis of Alternatives, see Chapter 26, “The Purpose and Content of an Analysis of Alternatives.”)

25.1 When Conversion Studies Are Required *(continued)*

Contents of a Conversion Study

The exact contents of the conversion study will depend on the specific acquisition, but the conversion study should include, as a minimum, those contents listed in FIRMIR Bulletin C-14, as shown in the table below.

Minimum Contents of a Conversion Study		
	Contents	Descriptions
1.	Problem Definition	A brief description of why the conversion study is being done and what new FIP resource is to be acquired, if possible described in functional terms, such as “a computer capable of reading all files developed on the UNIX operating system.”
2.	Inventory of Components for the Current Systems	Examples include the computer terminal(s), the server or main computer, and any key peripherals, such as printers
3.	Description of Operating System	For example, “UNIX,” “DOS 6.0,” or “Apple System 7.1”
4.	Inventory of the Application Programs and Data files to be Converted	Such as “2,000 employee data files in WordPerfect 5.1,” “250 files in Quattro Pro 2.0,” “4,000 files in Enigma Base 4.7,” etc.
5.	General Description of the Target Environment	Includes performance requirements and constraints or limitations on the requirement dictated by user needs (for example, “the new computer LAN will be required to access, process and store the equivalent of 20,000 pages of text per working day and will be operated by inspection personnel in Grades GS 10 through 12 who are not trained computer operators and must not require more than two days of training in the new LAN system.”)
6.	Recommended Approach to Accomplish the Conversion Tasks	Includes analysis of alternative approaches, with a benefit/cost analysis for each approach:
7.	Cost and Risk Reduction Recommendations	Specific agency actions to be taken to reduce the cost and risk of future conversions.

You can see that all these contents can produce a large document, which will be part of the APR “package” submitted by an agency to obtain a DPA.

(continued on next page)

25.1 When Conversion Studies Are Required *(continued)*

Conversion Costs

One important part of the conversion study is the estimate of *conversion costs*. In some cases, converting to new hardware or software can be very expensive, especially if there are very large files to convert. Therefore, the cost of conversion is ALWAYS a factor in the acquisition, although it may not be the most important factor.

FIRMR 201-20.203 requires agencies to include any costs that can be stated in dollars, as well as other expenses directly related to the conversion. For example, one cost that you can calculate in dollars is the cost of labor hours required for converting old computer files. You would also include travel costs for bringing in programmers from another site to assist with the conversion.

Costs Not Included

However, there are some costs that should NOT be included in the conversion costs. Do NOT include costs for:

- Converting existing software and databases that would be redesigned regardless of whether or not augmentation or replacement FIP resources are acquired.

Example: an agency plans to redesign a personnel database without buying new hardware or software

- Purging duplicate or obsolete FIP software, databases, and files.

Example: an agency intends to destroy all files that are more than five years old.

- Development of documentation for estimating FIP application software

Example: an agency intends to contract for the development of a manual for the LAN system manager.

- Improvements in management and operating procedures.

Example: an agency intends to contract with a consultant to train personnel to use an existing database more efficiently.

25.2 Predicting Restrictiveness of a Requirement

Restrictiveness of Requirement

Sometimes, a conversion study may come to the conclusion that a conversion is not feasible, or would be so difficult and expensive (based on benefit/cost analysis) that conversion is not really an advantageous alternative. In such a case, the agency might conclude that any new FIP hardware or software must therefore be compatibility-limited or even a specific make and model.

This type of conclusion places great restriction on the scope of competition, and should be avoided if possible, unless it can be fully justified. So, if you receive a requirement which is either “compatibility-limited” or for a “specific make and model,” you should also expect a complete justification, based on a conversion study, including a benefit/cost analysis.

In fact, when you read the results of the conversion study, *you may have to return the requirement to the agency for further justification* if the conversion study does not support the conclusion that only a compatibility-limited or specific make and model specification will meet the requirement.

Predicting the Restrictiveness

Often, you can predict the restrictiveness of the requirement rather easily by reviewing the conditions that apply to the acquisition. Consider the following examples:

Example 1 - An agency must convert sensitive personnel and employment data for 15,000 employees within a period of 90 working days, using new software. After conversion, the old files will be removed and stored in an archive, but cannot be destroyed without violating agency directives. The costs of conversion are estimated at \$300,000 for labor alone for Government programmers and systems managers. The agency also calculates there is a very high risk (more than 90%) that another manufacturer’s software will not be able to convert the data files without major problems which might require another \$85,000 in trouble shooting costs. These costs will exceed the agency’s budget for the operating year. The agency therefore concludes that a “compatibility-limited” requirement for the new software is reasonable.

Given only this information, you could reasonably conclude that the agency’s requirement was reasonable, justified and restrictive, and would lead to less competition.

(Topic continued on next page)

25.2 Predicting Restrictiveness of a Requirement *(continued)*

Predicting the
Restrictiveness
(continued)

Example 2 - An agency has a requirement to convert to newer database application software for its security office files concerning unclassified visits by non-agency personnel. Since the files are only temporary, they may be destroyed after 60 days. As of January first, all new interviews will be completed using the new software. There is no need to convert the old files to the new software. Nevertheless, the agency specifies a compatibility-limited requirement.

Given only this information, you could reasonably conclude that a compatibility-limited requirement does not seem justified and that it would unnecessarily restrict competition.

Example 3 - A regulatory agency has a requirement to obtain new laptop computers for its inspector work force, to replace nine year old desk top models which are no longer manufactured. The agency has a large number of old files, of which approximately only 2,000 pages of text must be saved and converted. The agency's conversion study estimates a cost of \$5,000 to convert the old files and specifies acquisition of specific make and model laptop computers made by XYZ Corporation, because the older desk top models were also made by this manufacturer, although the new computers will have a different operating system.

Given only this information, you could reasonably conclude that the requirement for a specific make and model does not seem to be supported by the conversion study and will unnecessarily restrict competition.

Estimating Costs
for Conversion of
Software

The requiring agency may not have estimated, or may not know how to estimate, the cost of conversion. If this is the case, you should tell the agency that they can use a model developed for estimating conversion costs for software.

Federal Software
Management
Center

You can obtain the model by contacting the Federal Software Management Center (KRS). The Center also provides assistance on all aspects of software management to Federal Agencies, including:

- conversion studies
 - conversion of software
 - improvement of software
 - software engineering
 - software tools
 - advice on training
 - references
 - research
-

(continued on next page)

25.2 Predicting Restrictiveness of a Requirement *(continued)*

Federal Software
Management
Center

You can contact the Federal Software Management Center by calling:

(703) 756-4500

Considerations in
Using the Model

When the requiring agency uses the conversion study model, it must make two major considerations:

1. The agency must consider the cost of conversion to a new software, versus the cost of rewriting the existing programs that it now uses.
2. The agency must also consider whether it will change (or has already changed) the programming languages.

Use of the conversion study model forces the requiring agency to estimate all the input factors, such as complexity of files, archives and records, the completeness of the available documentation, scope of required training, and other factors which may impact on cost of conversion.

Predicting
Restrictiveness

When a conversion study has been properly completed, it may indicate that the only favorable alternative for acquisition is to buy a “name brand or equivalent” or a “compatibility limited” software, so that the new software will be compatible with the older software and the records and files on hand.

If the conversion study supports such a restriction on the acquisition, you should be able to use the conversion study as justification.

You should be able to predict, by reading the acquisition plan and conversion study, what the degree of restrictiveness will be. Based on the results of the conversion study, the language should clearly identify and support any requirement for restrictiveness.

(continued on next page)

25.2 Predicting Restrictiveness of a Requirement *(continued)*

Examples

For example, if the only practical alternative is software which must be obtained from the original manufacturer, the language in the conversion study findings and in the acquisition plan should clearly support this requirement for restrictiveness. An example of how such highly restrictive language might look is:

“Based on the findings of the conversion study, we have concluded that it is necessary to obtain software which is 100% compatible with our existing software and fully supports our frequent access to extensive files without the costs of conversion to another software package.”

Second example - If the conversion study conclusion is that the acquisition should be “compatibility-limited,” look for language that is a bit less restrictive, such as:

“Based on the findings of the conversion study, we have concluded that it is necessary to obtain only software that is compatible with the existing software.”

You should look for examples of similar language which indicate restrictiveness in the conversion study and the acquisition plan. On the other hand, unless the conversion study supports restrictions on the acquisition process, you should always maximize competition.

Decision Table

The following decision table summarizes the actions that you should take to determine if a conversion study is necessary and whether it justifies a restriction on competition in the acquisition process.

Decision Table for a Conversion Study		
If...	Then...	Otherwise...
<ul style="list-style-type: none"> An agency will acquire FIP resources where none exist OR... <ul style="list-style-type: none"> An agency will acquire only peripherals OR... <ul style="list-style-type: none"> An agency is exercising an option to purchase under an existing lease agreement... 	A conversion study is NOT needed.	<p>You should require a conversion study.</p> <div> <p>Note that if the conversion study supports a <i>compatibility-limited</i> or a <i>specific make and model</i> requirement, then the requirement will restrict the competition</p> </div>

SUMMARY

In this chapter, you learned how to predict whether to require the ability to run existing software without modification, and if not, make the cost of converting existing software a factor in selection (all software or selected software). In the next chapter, you will learn how to analyze a proposed requirements analysis to determine if the mandatory and nonmandatory requirements are included in the requirements documentation.

CHAPTER 26

THE PURPOSE AND CONTENT OF AN ANALYSIS OF ALTERNATIVES

Chapter Vignette

“I can see that analyzing and establishing requirements is important, but how do we get from deciding what we need to how we will buy it? There are so many options that it must be hard to identify the best single alternative in a FIP acquisition,” said Mark.

“It can seem complicated,” Marcia replied, “but that is why we do an analysis of alternatives to determine the best or most advantageous alternative among those available. As was true with the requirements analysis, there are some mandatory and nonmandatory requirements that are considered. While it’s important to consider mandatory sources such as FTS2000, it’s also important to consider existing nonmandatory contracts — such as multiple award schedule contracts. These can save a lot of money by avoiding the expense of contracting. You will see that just thinking about possible alternatives can greatly improve the economy and efficiency of the acquisition process.”

Course Learning Objectives

At the end of this chapter, you will be able to:

Overall:

Explain the purpose and content of an analysis of alternatives and describe its relationship to the requirements analysis and the overall acquisition process.

Individual:

- 26.1 Define “analysis of alternatives,” “the most advantageous alternative,” and “conversion study.”
- 26.2 Demonstrate the relationship of the requirements analysis and the analysis of alternatives to the acquisition process.
- 26.3 List the minimum alternatives to be included in the analysis of alternatives.
- 26.4 Identify other alternatives to consider in the analysis of alternatives.
- 26.5 Identify mandatory and nonmandatory requirements to be included in the analysis of alternatives.
- 26.6 Identify the areas unique to commercial software which must be addressed in a requirements analysis and analysis of alternatives.
- 26.7 Demonstrate how the analysis of alternatives improves the specification.
- 26.8 Summarize the determination of the best source(s).

Chapter Overview

Scope

This chapter discusses the purpose and content of an analysis of alternatives in a FIP resources acquisition. You should know that an analysis of alternatives helps determine *how and from what sources the needed goods or services will be acquired*. Therefore, you need to understand that the alternatives analysis determines the sources you will solicit to meet your agency's need.

The alternatives analysis is the second major pre-procurement study, typically conducted after the requirements analysis has been completed and documented. At this time in acquisition planning, agencies need to decide:

- What alternatives are available for me to meet my need?
- Which alternative is the most cost-beneficial?

These are two distinctly different questions. The first seeks to determine *many ways* to meet the need. The second seeks to determine the *best way* to meet the need. In other words, answering the second question measures the alternatives found when answering the first question.

For large acquisitions, these two questions are often answered with two separate documents: the alternatives analysis and the benefit-cost analysis. For smaller acquisitions, both questions may be answered by a single document.

We will consider the two questions separately. In this chapter, we will focus on the process of identifying alternatives. This is the fundamental nature of an alternatives analysis. In Chapter 28, *Benefit-Cost Analysis and Present Value Discounting*, we will focus on the process of selecting the best alternative for acquiring needed goods and services.

(continued on next page)

Chapter Overview *(continued)*

References

In order to understand and perform the tasks discussed in this chapter, you may need to refer to the following references. They provide information not only on analyzing alternatives, but also about the types of alternatives available through Government programs and contracts.

- FIRMR 201-20.2, especially 201-20.203-4
 - FIRMR 201-24
 - FIRMR 201-39.8 and 201-39.13
 - DFARS 239.001
 - FIRMR Bulletins C-1 *Sharing Telecommunications Resources*
 - C-2 *Disposition and Reuse of FIP Equipment*
 - C-9 *Nonmandatory GSA Services and Assistance Programs*
 - C-11 *Sharing of Automatic Data Processing Resources*
 - C-12 *Federal Software Exchange Program*
 - C-14 *Conversion of FIP Resources*
 - C-15 *Mandatory Local Telecommunications Services*
 - C-18 *FTS2000*
 - C-19 *Information Systems Security (INFOSEC)*
 - C-20 *National Security and Emergency Preparedness (NSEP) Telecommunications*
 - C-21 *Purchase of Telecommunication Services (POTS) Contracts*
 - C-24 *Use of Contracts Designated by GSA for Governmentwide Use by Federal Agencies*
 - C-27 *Reuse of Outdated FIP Equipment*
 - C-29 *Acquisition of Used Computer Equipment by the Federal Government*
 - C-30 *Replacement of, and Screening for, FIP Equipment under Exchange/Sale Authority*
 - C-32 *Vendor Provided FIP Training*
 - C-34 *Video Teleconferencing and Use of FIP Audiovisual and Telecommunications Resources*
 - GSA's *Overview Guide: Acquisition of Information Resources*
 - GSA's *A Guide for Requirements Analysis and Analysis of Alternatives*
-

Chapter Overview *(continued)*

GSA's Bulletin Board System

GSA maintains an electronic bulletin board with up-to-date information on its programs and contracts, including multiple award schedule and governmentwide contracts. Refer to FIRMR Bulletin C-17 or call GSA on (202) 501-1401 for further information.

Topics in This Chapter

The major topics in this chapter are:

SECTION	TITLE	PAGE
26.1	Key Definitions	26-6
26.2	The Analysis of Alternatives and Its Relationship to the Requirements Analysis and the Acquisition Process	26-7
26.3	Required Alternatives to Consider in the Analysis of Alternatives	26-14
26.4	Other Alternatives to Consider in the Analysis of Alternatives	26-16
26.5	Content of the Analysis of Alternatives	26-18
26.6	Areas Unique to Software	26-20
26.7	How the Analysis of Alternatives Generates Improvements in the Specification	26-22
26.8	Summary: Determining the Best Source(s)	26-23

26.1 Key Definitions

Introduction	This section defines certain key terms that you must know to understand the role of the analysis of alternatives in the overall acquisition process.
--------------	--

Definitions	In order to understand the concept of an analysis of alternatives, you should be familiar with the key definitions in the following table.
-------------	--

KEY DEFINITIONS
Analysis of alternatives —a process to identify, compare, and evaluate various alternatives to determine which alternative is the most advantageous to the Government. (FIRMR 201-20.2)
Most advantageous alternative —that alternative which provides the greatest value to the Government over the system life, in terms of price, cost, quality, performance and any other relevant factors. (FIRMR 201-20.203-4)
Conversion study —a study conducted to determine the costs, risks, and magnitude of conversion from installed FIP resources to augmentation or replacement resources. (FIRMR 201-4.001 and 201-20.203-4)

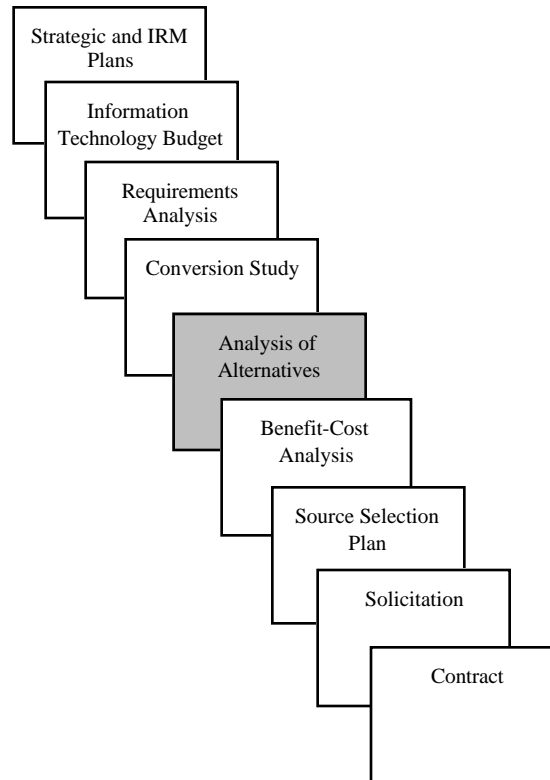
26.2 The Analysis of Alternatives and Its Relationship to the Requirements Analysis and the Acquisition Process

Purpose of the Analysis of Alternatives

The ultimate purpose of an analysis of alternatives is *to select the one alternative that is most advantageous to the Government for the acquisition of FIP resources*. The analysis of alternatives cannot be done until the requirements analysis is complete.

Acquisition Process

As you know, there are many steps required from the time that the need for FIP resources is first conceived until that resource is being used to satisfy mission needs. You have studied many of these preliminary steps. The following illustration is a *simplified overview* of the acquisition process. It shows the relationship of the alternatives analysis to the steps you've already studied and to such major contracting steps as developing the source selection plan, preparing the solicitation, and awarding a contract. Note the relationship of the alternatives analysis within the overall acquisition life cycle.



(continued on next page)

26.2 The Analysis of Alternatives and Its Relationship to the Requirements Analysis and the Acquisition Process *(continued)*

Steps in the Analysis of Alternatives

Although the scope and appearance of alternatives analyses may vary, a comprehensive analysis of alternatives follows certain steps:

Step 1 - Determine objectives, assumptions, and constraints

Step 2 - Identify alternative solutions

Step 3 - Determine risks and effects of each solution

Step 4 - Analyze, compare, and rank the alternative solutions

Step 5 - Determine costs and benefits of several solutions

Step 6 - Select most advantageous alternative

Remember that the last two steps may be part of the analysis of alternatives or addressed in another document called the benefit-cost analysis. In this text, we will address the final steps in Chapter 28, *Benefit-Cost Analysis and Present Value Discounting*. The rest of this chapter provides detail on the first four steps.

Step 1: Determine Objectives, Assumptions, and Constraints

By the time the alternatives analysis is prepared, your agency has already analyzed its requirements. As you learned in Chapter 22, agencies frequently address goals and objectives, constraints, and assumptions in the requirements analysis. So you may find that the alternatives analysis does not address these factors — or reiterates those developed in the requirements analysis.

As you learned, constraints are factors that affect and limit in some way the solutions possible for the acquisition. Constraints may relate to laws or regulations or technological, socio-political, financial, or operational conditions. For example, if Congress mandates a source—such as acquiring supercomputers from American firms—then agencies' choices are constrained: they must conform to the limitation. Another common constraint is the need for compatibility, proven and justified by the conversion study.

(Topic continued on next page)

26.2 The Analysis of Alternatives and Its Relationship to the Requirements Analysis and the Acquisition Process *(continued)*

Step 1: Determine objectives, assumptions, and constraints (continued)

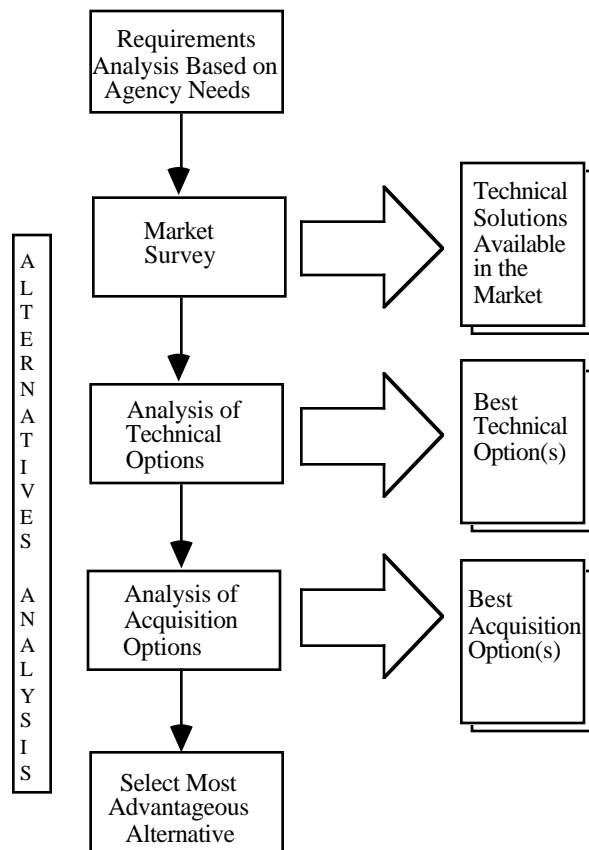
Assumptions are factors predicted to apply to the program or project that affect the acquisition. For example, the system life and workload projections are common assumptions. Other assumptions might relate to cost, resource, program, or technical factors, such as availability of a new software release or generation of equipment.

Step 2: Identify alternative solutions

There are three major stages involved in identifying alternatives:

- Surveying the market
- Identifying technical solutions
- Identifying acquisition (source) solutions.

The process is represented in the flowchart below.



(Topic continued on next page)

26.2 The Analysis of Alternatives and Its Relationship to the Requirements Analysis and the Acquisition Process *(continued)*

Step 2: Identify
alternative
solutions
(continued)

Note that the alternatives analysis considers and documents the results of market research. This first major task in the alternatives analysis—surveying the market—has four main objectives:

1. *Verify the technical feasibility* of the agency's requirements (as they are described in the requirements analysis);
2. *Determine sources and the extent of competition;*
3. *Collect pricing information for comparative cost analysis;* and
4. *Determine the industry's norms and business practices* for this FIP acquisition.

Although the market survey is normally done by personnel from the requiring agency, *you may be asked for assistance*. You should ensure that the market survey is thorough and reveals the range of technical options available in the market. For further information, see Chapter 16, *Market Research for Acquisition of FIP Resources*.

The second stage is the analysis of technical options or technical alternatives. This stage considers what technological solutions could support the need. *The initial purpose is to identify a range of solutions—not to eliminate all but one*. Although some alternatives and options which are NOT technically feasible will be eliminated early, agencies should seriously consider more than one technical solution.

The third stage of the analysis of alternatives is the analysis of acquisition (or source) alternatives. These include such options as GSA mandatory use contracts (such as FTS2000) and optional use sources (such as excess equipment). Again, the purpose is to consider all reasonable source solutions.

Of course, during the analysis of acquisition alternatives, your agency would not waste time on those alternatives which have already been eliminated for technical reasons in the requirements or alternatives analysis. For example, you would not consider GSA's mandatory local telecommunications service if you have a need outside of the areas served by GSA's program.

(Topic continued on next page)

26.2 The Analysis of Alternatives and Its Relationship to the Requirements Analysis and the Acquisition Process *(continued)*

Step 2: Identify
alternative
solutions
(continued)

The table below provides examples of the types of technical and acquisition alternatives that your agency's program and technical staff may consider. You will learn more about alternatives in sections 26.3 and 26.4 of this chapter.

REPRESENTATIVE TECHNICAL AND ACQUISITION ALTERNATIVES	
Alternative Platforms/Capacity Enhancements	Alternatives for Implementing Applications
Platform (or architecture) alternatives range from stand-alone solutions to mainframes to distributed processing networks. Requirements for capacity increases may affect platforms as well as other options.	Alternatives range from modifying current systems, transferring and modifying another system, incorporating off-the-shelf solutions, to initiating custom development (when more cost-effective and timely do not exist).
Architecture <ul style="list-style-type: none"> • Client/server LAN and micros • Distributed • Mainframe • Minicomputer • Work station • Microcomputer (stand-alone) Mandatory or Optional Use Contracts Outsourcing (Contracting out) Acquire Services (other than equipment) <ul style="list-style-type: none"> • From other agencies • Commercially Reconfigure Existing Resources Reassign, Reuse, or Share Resources Use of Non-automated Alternatives <ul style="list-style-type: none"> • Reallocating or increasing personnel • Manual systems or work processes 	Off-the-shelf Software <ul style="list-style-type: none"> • Generalized, such as DBMS • Specialized, such as payroll Transferring/Modifying another System <ul style="list-style-type: none"> • Using In-house Services • Using Other Agency Services • Using Contract Services • Using a Combination Modifying or Redesigning Current Systems <ul style="list-style-type: none"> • Using In-house Services • Using Other Agency Services • Using Contract Services • Using a Combination Custom Development <ul style="list-style-type: none"> • Using In-house Services • Using Other Agency Services • Using Contract Services • Using a Combination Mandatory or Optional Use Contracts

(Table continued on next page)

26.2 The Analysis of Alternatives and Its Relationship to the Requirements Analysis and the Acquisition Process *(continued)*

Step 2: Identify
alternative
solutions
(continued)

Alternative for Acquiring Services	Alternatives for Obtaining Support Services
Services include teleprocessing, computer time, electronic mail, voice mail, and cellular telephone. Alternatives include using both in-house and contractual solutions, as well as sharing or borrowing resources.	Support Services includes source data entry, training, custom software development, systems analysis and design, software conversion, facilities management, maintenance, equipment operation, network management, studies (e.g., requirement analysis and analysis of alternatives, and evaluation.)
Increase In-House Resources	Increase in Permanent Staffing
In-house Development of Service Capability	In-House Developing of Service Capability
Resources Sharing with other Agencies	Resources Sharing with other Agencies
Mandatory or Optional Use Contracts	Mandatory or Optional Use Contracts
Contractual Commercial Services	Contractual Commercial Services
Temporary Commercial Services	<ul style="list-style-type: none"> • Manpower Based • Project Based • Full Service, Per Call, On Call
	Temporary Commercial Services

Step 3: Determine
risks and effects

Once all viable alternatives are identified, your agency must determine the risks and effects for each. It could be that excessive risk may eliminate a technologically viable alternative from consideration.

For example, security considerations might require centralizing critical information in a secure environment rather than distributing processing in geographically dispersed (and less secure) offices. Although both centralized and distributed processing are viable technological alternatives, risk factors require a centralized environment. Another common example that restricts the solution is the risk of failure proven in a conversion study, thereby justifying a compatible or specific make and model acquisition.

(Topic continued on next page)

26.2 The Analysis of Alternatives and Its Relationship to the Requirements Analysis and the Acquisition Process *(continued)*

Step 3: Determine risks and effects
(continued)

Risks and effects may relate to:

- Program impacts
 - Equipment impacts
 - Software impacts
 - Information impacts
 - Organizational impacts
 - Operational impacts
 - Developmental impacts
 - Space and facility impacts
 - Cost impacts.
-

Step 4: Analyze, compare, and rank the alternative solutions

If more than two or three viable alternatives have been identified, your agency should rank alternatives so that only those most likely to achieve the mission and objectives efficiently, effectively, and economically are analyzed during the benefit-cost analysis. (This is because analyzing costs and benefits is expensive.) *Ranking is the first step in determining the most advantageous alternative.*

The method used to rank alternatives should be documented in the alternatives analysis. Ranking criteria should be tailored to the acquisition and relate to the acquisition mission and objective. Examples of ranking criteria include:

- Minimizing personnel expenses over the systems life,
- Limiting development time so resources are in use quickly,
- Retaining a centralized information repository for reasons of security, *or*
- Distributing processing to minimize point-of-entry delays.

The top two or more alternatives are then evaluated for cost and benefits. You will learn more about this in Chapter 29, *Benefit-Cost Analysis and Present Value Discounting*.

26.3 Required Alternatives to Consider in the Analysis of Alternatives

Required Acquisition Alternatives to Consider

FIRMR 201-20.203-1, *Analysis of Alternatives*, identifies certain alternatives that agencies must consider when conducting an alternatives analysis. These alternatives are acquisition or source alternatives that are typically considered after technological alternatives have been identified. These acquisition alternatives include:

- Using GSA's mandatory-for-use programs when they will meet requirements,
- Using GSA's mandatory-for-consideration programs when they will meet requirements *and* their use is the most advantageous alternative,
- Reassigning or reutilizing FIP resources no longer needed for other purposes in the agency or other agencies,
- Sharing FIP resources,
- Acquiring resources by contracting, including small purchase and small and disadvantaged business set-asides.

Agencies consider these alternatives *to the extent that they apply to the acquisition*. Note that contracting would be considered only after other alternatives are eliminated.

Mandatory-for-use Programs

FIRMR 201-24.1 identifies GSA's mandatory-for-use programs. These sources must be used when they will meet agency requirements — unless agencies obtain an exception from GSA. Mandatory-for-use programs include:

- FTS2000 network
 - Consolidated local telecommunications service
 - National security and emergency preparedness (NSEP)
 - Financial Management Systems Software (FMSS) Multiple Awards Schedule (MAS) Contracts program
-

(continued on next page)

26.3 Required Alternatives to Consider in the Analysis of Alternatives *(continued)*

Mandatory-for-consideration Programs

FIRMR 201-24.2 identifies GSA’s mandatory-for-consideration programs. These sources should be used when they will meet agency requirements *and their use is the most advantageous alternative*. Mandatory-for-consideration programs include:

- Federal Software Exchange Program
- Excess FIP Equipment
- Federal Secure Telephone Service (FSTS)
- Information systems security (INFOSEC)

Additional Information

These mandatory-for-use and mandatory-for-consideration programs are discussed in detail elsewhere in this text. You should check the FIRMR and FIRMR Bulletins for information on these programs and contracts. Refer to the references section of this chapter on page 26-4 for further information.

26.4 Other Alternatives to Consider in the Analysis of Alternatives

Nonmandatory Programs

In addition to the mandatory-for-use and mandatory-for-consideration programs, there are also certain NONMANDATORY programs and contracts that you may consider. These include:

- GSA Nonmandatory Multiple Award Schedule (MAS) Contracts:
 - Telecommunications Group 58: telephone, facsimile, public address, video teleconferencing, telephone answering equipment, non-tactical radio, tone and voice paging, and radio navigation equipment. (202) 501-1061
 - General Purpose ADP Group 70: mainframe, mini, and end-user computers, including optical systems, peripheral equipment and software packages. (202) 501-1993
- GSA Office of Technical Assistance *cost-reimbursable* programs:
 - Federal Information Systems Support Program: ADP support services including systems analysis and programming, computer operations, computer security and related services through consolidated contracting, project management and administration. (703) 756-4227
 - Federal System Management Center: technical assistance in the management and operation of information technology centers including cost recovery, capacity management, security and data center reviews. (703) 756-4111
 - Federal Systems Acquisition Support Center: technical and contractual assistance in all areas related to the acquisition of information resources. (703) 756-4201
 - Federal Software Management Support Center: software conversion, software renewal, and the development of automated software engineering tools and technology (703) 756-4500
- GSA's Telecommunications Technical Service Contract: system analysis, system design, technical specifications, systematic testing and relocation for voice data systems. (202) 501-3881.

All these programs establish contracts from which agencies can order goods and services.

(continued on next page)

26.4 Other Alternatives to Consider in the Analysis of Alternatives

(continued)

Existing Contractual Sources

There are other contracts already “in place” and approved for multi-agency ordering. These contracts can save a great deal of time and effort in acquiring FIP resources. These are specialized contracts referred to as “Governmentwide agency contracts.” They are described in FIRMR Bulletin C-24. Examples include:

- *Air Force Standard Multiuser Small Computer Requirements Contract (also known as AFCAC 251)*, for small computer systems (TEMPEST and non-TEMPEST) and related maintenance, training, systems analysis, engineering support, software, and telephone assistance.
- *Joint Service Standard Lapheld II Contract*, available through the Department of the Navy for notebook computer systems, including maintenance and training.
- *Electronic Data Interchange (EDI) Network Services*, a no fee service available through GSA for network services between vendors, bidders and clients. (This service is expected to grow in importance as electronic commerce and EDI replace paper-based contracting, especially for small purchases.)
- *International Switched Voice Service (ISVS)*, available through the Department of Defense, for international voice and data transmission for all Federal agencies from the U.S. mainland to specified international locations.

You should check with GSA on (202) 501-1126 to obtain the latest information on Governmentwide agency contracts (GWACs). Or you can use GSA’s Bulletin Board Service on (202) 208-7484 (300 to 9600 baud, 8 data bits, no parity, and 1 stop bit).

Open Market

If your agency’s need cannot be met by existing programs or contracts, reassignment, reuse, or sharing, then you should consider open-market contracting. You would do this in cooperation with program and technical staff.

There are many options for open market contracting, including:

- Small purchases
- Small and disadvantaged business set-asides
- Other contracting.

For further information about locating open market sources, see Chapter 16, *Market Research for Acquisition of FIP Resources*.

26.5 Content of the Analysis of Alternatives

Mandatory Requirements

The FIRMR dictates that an analysis of alternatives consider certain acquisition alternatives. As you learned earlier, they are:

- GSA’s mandatory-for-use programs
- GSA’s mandatory-for-consideration programs
- Reassignment or reutilization
- Sharing
- Contracting

Your agency must consider these alternatives, to the extent that they apply to the acquisition. For example, if you are acquiring technical support services, you would not need to consider reassigning or reusing equipment. Similarly, if you are buying microcomputers, you need not consider GSA’s mandatory-for-use program, FTS2000.

Finally, agencies must consider the costs, risk, and magnitude of conversion from installed FIP resources to augmentation or replacement resources.

Nonmandatory Requirements: Organization and Content

The FIRMR does not dictate how an analysis of alternatives should be organized or suggest content beyond the “considerations” discussed above. However, the following are typical:

- Overview
 - Assumptions and constraints
 - Methodology
 - Results of market survey and sources sought
 - Description of technical alternatives and acquisition alternatives, with risks and effects for each
 - Ranking of alternatives
 - Costs and benefits (either included with the analysis of alternatives or as a separate document)
 - Justification for selected alternative
-

26.5 Content of the Analysis of Alternatives *(continued)*

Size of the
Analysis of
Alternatives

FIRMR 201-20.202

FIRMR 201-20.202 requires agencies to conduct an analysis of alternatives *commensurate with the size and complexity of the need*. So the content of the alternatives analysis varies according to the size and complexity of the FIP resource acquisition.

If the acquisition is large and complex, the analysis of alternatives may be very extensive and involve many people. It may even be “contracted out” to a private sector firm specializing in analyzing alternatives, costs, and benefits. The result may be a large and complex document produced over a period of several months or more.

On the other hand, if the FIP resource acquisition is fairly simple and straightforward, the alternatives analysis may be a much smaller document produced with one or more days of work “in house” by technical personnel from the requiring agency.

So you must understand that the analysis of alternatives must fit the procurement in terms of depth, complexity, length, and content.

Other
Considerations

GSA’s popular acquisition guides include special considerations for the alternatives analysis *by type of resource*. For example, if you are buying systems integration services, GSA discusses issues such as choosing among architectural options and deciding about off-the-shelf versus custom system development. If you are buying maintenance services, GSA’s guidance discusses common industry maintenance practices, including ways of delivering maintenance service. And if you are buying FIP support services, GSA advises on areas such as restrictions on key personnel and defining technical scope.

These guides, which follow a standardized outline, normally address analysis of alternatives in Chapter 6. So if you are participating in or reviewing an alternatives analysis, you should refer to these guides. Available on GSA’s CD-ROM or through its IRM Reference Center, they now include:

- *A Guide for Acquiring Maintenance Services*
- *A Guide for Acquiring Commercial Software*
- *A Guide for Acquiring Systems Integration Services*
- *A Guide for Acquiring Federal Information Processing Support Services*

26.6 Areas Unique to Software

Factors Unique to Software

There are some factors unique to software that must be addressed in a requirements analysis and in an analysis of alternatives.

As a rule, software, especially commercial software, is changed, modified and improved more often than the hardware on which it runs. It is not unusual for three or four upgrades or generations of software to be released in a five year period. Often, this software is not compatible with software from other authors, even if it does the same things. For example, some word processing programs from different producers are not readily compatible, even if they include conversion features.

Also, software vendors generally do not wish to sell software, preferring instead to “license” it to the users, including the Government.

This means that when a software requirement arises, you can be fairly sure that:

1. That version of software will be obsolete or outdated in a few years; and
2. It will probably not be readily compatible with other software applications that perform the same tasks; and
3. The author or vendor will probably prefer a licensing agreement rather than an outright sale, especially if that software is commercially available.

Therefore, there is generally less competition in a software acquisition, especially for commercial software, than in most types of FIP resources acquisitions.

Since these factors are unique to software, they can create a higher degree of risk in the acquisition. This leads to certain special considerations when software is involved, specifically:

- Conversion studies
 - Licensing restrictions
 - Customization
-

26.6 Areas Unique to Software *(continued)*

Conversion Study	<p>The first unique area you should understand about software is the requirement for a <i>conversion study</i>. The risk of acquiring noncompatible software, or software that will not operate acceptably, may be very high. Often, too, there are significant hidden costs of acquiring noncompatible software that arises from the need to retrain staff and from lost efficiency while users become adept with the new software.</p> <p>Agencies use software conversion studies and benefit-cost analyses to document the software applications programs or data to be converted and describe costs. For large buys, these are typically separate documents. For extremely small buys, such as purchase of a small number of copies of off-the-shelf software, a single document is sometimes used to describe and justify the requirement. (For more information, see Chapter 25, <i>Determining if Conversion Studies are Necessary</i>, Chapter 28, <i>Benefit-Cost Analysis and Present Value Discounting</i>, and Chapter 12, <i>Acquiring Commercial Software</i>.)</p>
Licensing Restrictions	<p>A second area unique to the software analysis of alternatives concerns <i>licensing restrictions</i>. Software is often licensed, rather than purchased outright. There may be licensing restrictions that affect how freely you can transfer software among Government agencies. If such restrictions exist, then you must include in the analysis of alternatives a consideration of what effect licensing restrictions may have.</p> <p>Note that one of your negotiation goals may be to obtain software licenses and warranties with the least restrictions and greatest flexibility for use by the Government.</p>
Customization	<p>A third area unique to software concerns <i>customization</i>. In some acquisitions, there may be no software that exactly meets the technical requirements, and some customization will be required. The cost and effort of software customization will add to acquisition cost and must be included in both the requirements analysis and in the analysis of alternatives. If there is a requirement for customization, this should be discovered in the requirements analysis or conversion study.</p>
For Further Information	<p>To learn more, refer to Chapter 12, “Acquiring Software,” and the GSA’s <i>A Guide for Acquiring Commercial Software</i>.</p>

26.7 How the Analysis of Alternatives Generates Improvements in the Specification

Using the Analysis
of Alternatives to
Improve
Specifications

If the initial specifications for a FIP resource acquisition are developed during the requirements analysis, later developments in acquisition planning may affect those specifications. During the analysis of alternatives, you may see that the specifications should be updated or improved, because something important was overlooked.

For example, some specifications are selected because they are already “familiar” to the technical personnel. However, these older specifications may be outdated, because they do not account for the new, improved capabilities available with current technology. During the analysis of alternatives it may become apparent that the specifications should be returned to the technical experts and revised to account for improvements in technology. If this happens, do not hesitate to recommend updating the specifications, or you may risk releasing obsolete specifications.

Also, both requirements and technology change over time. It is possible that nearly a year may pass between the time the specifications are first developed and the time when the analysis of alternatives occurs. This may require changing the specifications.

26.8 Summary: Determining Best Source(s)

Checklist for Determining the Best Source(s)

To conduct your determination in a systematic manner and minimize the chance of a mistake, you can take the following steps:

- _____ 1. Determine FIRMR applicability
 - _____ 2. Consider use of active inventory
 - _____ 3. Consider reutilization
 - _____ 4. Consider mandatory-for-use programs
 - _____ 5. Consider mandatory-for-consideration sources
 - _____ 6. Consider GSA nonmandatory FIP schedules
 - _____ 7. Consider open market sources
 - _____ 8. Evaluate costs and benefits
-

Summary: Determining Best Source(s)	
<p>Step 1 Determine FIRMR Applicability</p>	<p>If you have not yet done so, determine if the FIRMR applies. If the proposed acquisition is not governed by the FIRMR, follow the FAR. To determine whether the FIRMR applies, refer to FIRMR Bulletin A-1 (FIRMR applicability) and follow the guidance provided in Chapter 15 of this text.</p>
<p>Step 2 Use Active Inventory</p>	<p>The next step is to determine whether the requirement can be met by redistributing FIP assets. You should always consider using the active inventory in your analysis of alternatives.</p> <p>Reassignment: FIP resources not yet declared excess to your agency may be available for reassignment.</p> <p>Sharing. Many Federal agencies operate computer systems and other FIP resources that are not used to full capacity. Often, these existing resources can meet the requirement without the added cost of new acquisitions. First consider all resources available for sharing within the agency, then broadly consider FIP resources that may be available in other agencies.</p> <p>For example, the active inventory of FIP resources contains many mainframe computers throughout the country that are not being used to full capacity. Access to these mainframe computers is sometimes available through a “sharing” program established by GSA. In some cases, sharing is the most advantageous alternative.</p> <p>In accordance with the Paperwork Reduction Act (44 U.S.C. 3501), FIRMR 201-2.001 requires information resource managers to implement policies for sharing information technology (FIP resources). FIRMR Bulletin C-11 provides guidance on sharing. OMB Circular A-130, <i>Management of Federal Information Resources</i>, discusses procedures for cost accounting and recovery for shared resources.</p>
<p>Step 3 Consider Reutilization</p> <div> <p>DoD Ref. 7950.1-M, Property Reutilization</p> </div>	<p>You should next consider whether the FIP resource requirement can be met by using excess FIP resources — meaning resources not maintained in an agency’s active inventory but not yet determined surplus to the Government. Remember that agencies must report to GSA any excess equipment above \$1 million original acquisition cost. (DoD must report all FIP assets in excess of \$100,000.)</p> <p>FAR 8.1 requires agencies to consider the use of excess as a first source of supply. FIRMR 201-23 explains the procedures to follow in disposition of FIP hardware and software. FIRMR Bulletins C-2, C-27, and C-30 address reutilization.</p>

(Procedure continued on next page)

Summary: Determining Best Source(s) <i>(continued)</i>	
<p>Step 4 Consider Mandatory-for-Use Programs</p>	<p>If the FIRMR applies, you must consider GSA's mandatory-for-use programs. Most of these programs provide telecommunications resources or services.</p> <p>Definition: A mandatory-for-use program is mandatory unless a GSA exception has been granted.</p> <p>Sources Mandatory for Use:</p> <p>FTS2000. The FIRMR specifies that agencies MUST use the FTS2000 network for procurements subject to Section 111 of the Federal Property and Administrative Services Act (40 U.S.C. 759). GSA negotiated the FTS2000 contracts to acquire a nationwide, long distance telecommunications network (and related services) to meet needs across Government.</p> <p>FIRMR Bulletin C-18, <i>Federal Telecommunications System 2000 (FTS2000)</i>, provides information on FTS2000 contract services.</p> <p>Consolidated local telecommunications service. This mandatory-for-use service offered by GSA provides local telecommunications services in most buildings occupied by concentrations of federal employees. It includes major switches and switching service, universal features and applications, and wire and cable to designated points of connection. FIRMR Bulletin C-15 describes consolidated local telecommunications service, including how to order and how to obtain a current listing of service locations.</p> <p>National Security and Emergency Preparedness (NSEP). FIRMR 201-24.106 requires agencies to use available GSA telecommunications systems and services to meet their NSEP requirements for telecommunications. FIRMR Bulletin C-20 provides details.</p> <p>Financial Management Systems Software (FMSS) Multiple Awards Schedule (MAS) Contracts Program. FIRMR 201-24.107 requires agencies to acquire commercial software for primary accounting systems and related implementation services and support from the FMSS MAS program. (See FIRMR Subpart 201-39.8 for policies and procedures on using the FMSS MAS contracts program.) <i>This is GSA's only mandatory MAS program.</i></p>
FIRMR 201-24.001	
FIRMR 201-24.101	
FIRMR 201-24.102	
FIRMR 201-24.106	
FIRMR 201-24.107	

(Procedure continued on next page)

Summary: Determining Best Source(s) <i>(continued)</i>	
<p>Step 5 Consider Mandatory-for- Consideration Sources</p> <p>FIRMR 24.001(b)</p> <p>FIRMR 201-24.201</p> <p>FIRMR 201-24.202</p> <p>FIRMR 201-24.203</p>	<p>If the FIRMR applies, you must also consider GSA’s mandatory-for-consideration programs. This means that these sources must be considered in acquisition planning — and used if agency requirements can be met by these programs and if using them is the most advantageous alternative to the Government. (FIRMR 201-20.203-1(a)(3)).</p> <p>Definition: A mandatory-for-consideration source is one used when it satisfies the requirement AND is the most advantageous alternative.</p> <p>Sources Mandatory for Consideration:</p> <p>Federal Software Exchange Program (FSEP). FIRMR 201-24.201 describes the Federal Software Exchange Program, administered by the National Technical Information Service of the Department of Commerce under an interagency agreement with GSA. It promotes the sharing of common-use software and related documentation. See FIRMR Bulletin C-12 for additional information on FSEP.</p> <p>Excess FIP Equipment. FIRMR 201-24.202 describes the Excess FIP Equipment Program, a mandatory-for-consideration program that facilitates the reuse of excess FIP equipment components that are not outdated and that have an original acquisition cost of \$1 million or more. See FIRMR 201-23 and FIRMR Bulletin C-2 and C-30 for procedures for disposition and reuse of excess FIP equipment.</p> <p>Telecommunications Assistance Programs. FIRMR 201-24.203 describes the GSA’s mandatory-for-consideration telecommunications assistance programs and services. They include the Federal Secure Telephone Service (FSTS), for transmission of sensitive or classified voice information, and Information Systems Security (INFOSEC), for installation, maintenance, key distribution, design, engineering, and related consulting. GSA provides guidance on both programs in FIRMR Bulletin C-19.</p>

(Procedure continued on next page)

Summary: Determining Best Source(s) <i>(continued)</i>	
<p>Step 6 Consider Nonmandatory Schedules</p>	<p>Next you should consider GSA nonmandatory schedules.</p> <p>Applicability. Federal agencies may order FIP resources from the GSA Schedules and avoid the expense of open market contracting.</p> <p>GSA Nonmandatory Multiple Award FIP Schedule (MAS) Contracts GSA establishes nonmandatory schedules to provide a cost-effective way of obtaining widely needed, commercial FIP resources—both telecommunications and general purpose ADP resources. Prices established on the nonmandatory schedules are considered to be the best prices that the vendors would offer to their most favored customers. In addition, using schedules is inexpensive compared with open market contracting. Chapter 47 provides details on nonmandatory schedule usage.</p> <p>These nonmandatory schedules are especially useful in non-metropolitan areas where there are not significant numbers of FIP resource vendors available. Remember that these schedules for ADP and telecommunications resources are NONMANDATORY. (Only the FMSS MAS contracts for financial software described in Step 4 are mandatory.)</p>
<p>Step 7 Consider Open Market Sources</p>	<p>Finally, if none of the previous steps leads to acceptable sources, you should consider acquisition in the open market. Open market options include small purchases, small and small disadvantaged business set-asides, and other contracting.</p> <p>(For a more detailed discussion of market sources, see Chapter 16, “Market Research for Acquisition of FIP Resources.”)</p>
<p>Step 8 Evaluate Costs and Benefits</p>	<p>Once your agency has determined acceptable alternatives to meet its needs, the costs and benefits of those alternatives must be analyzed and compared. You will learn about this in Chapter 28.</p>

SUMMARY

In this chapter, you learned about the purpose and content of an analysis of alternatives and its relationship to the requirements analysis and the overall acquisition process. In the next chapter, you will learn about reviewing an analysis of alternatives.

CHAPTER 27

REVIEWING AN ANALYSIS OF ALTERNATIVES

Chapter Vignette

“If the analysis of alternatives largely determines how and from what sources we will solicit offers,” said Mark, “does that mean it affects the competitiveness of the procurement?”

“It sure does,” answered Marcia, “which explains why it’s important for you to be able to review the document. Remember—a good analysis of alternatives is thorough, considers all viable alternatives, and analyzes the advantages and disadvantages of each alternative, including the tradeoffs between costs and benefits and level of risk associated with each alternative. Also, the analysis of alternatives must avoid eliminating without justification an alternative, such as sharing or using an existing contract, that might meet the Government’s requirements.”

Course Learning Objectives

At the end of this chapter, you will be able to:

Overall:

Review and critique an analysis of alternatives.

Individual:

- 27.1 Demonstrate how to recognize an analysis of alternatives.
- 27.2 Explain the key factors required for a successful analysis of alternatives.
- 27.3 Explain the analytical process required to critique an analysis of alternatives.
- 27.4 Review an analysis of alternatives.

Chapter Overview

Scope

This chapter explains how to critique an analysis of alternatives. Examples of language from analyses of alternatives are provided for your consideration. This chapter emphasizes:

- Reviewing for inclusion of mandatory and nonmandatory requirements;
 - Determining the effect on competition,
 - Identifying and assessing risk, and
 - Evaluating and selecting of the most advantageous alternative.
-

References

In order to understand and perform the tasks discussed in this chapter, you may need to refer to regulatory and guidance documents. Chapters 26 and 28 contain complete lists.

Topics in This Chapter

The major topics in this chapter are:

SECTION	TITLE	PAGE
27.1	How to Recognize an Analysis of Alternatives	27-4
27.2	Key Factors for a Successful Analysis of Alternatives	27-6
27.3	Overview of the Analytical Process: Critiquing the Analysis of Alternatives	27-8
27.4	How to Review an Analysis of Alternatives	27-11

27.1 How to Recognize an Analysis of Alternatives

Introduction

An analysis of alternatives helps determine *how and from what potential sources the Government will acquire needed goods or services*. It determines:

- What alternatives are available to meet the need?
- Which alternative is the most advantageous?

For large acquisitions, these two questions are often answered with two separate documents: alternatives analysis and benefit-cost analysis. For smaller acquisitions, both questions may be answered by a single document. Nonetheless, *the single element that alternatives analyses have in common is a listing of possible alternatives to meet a need*.

Sample Organization and Content

The FIRM does not dictate how an analysis of alternatives should be organized. The alternatives analyses you review in this chapter address some or all of the following:

- Overview
 - Assumptions and constraints
 - Methodology
 - Results of market survey and sources sought
 - Description of technical and acquisition alternatives, with risks and effects for each
 - Ranking of alternatives
 - Costs and benefits (either included with the analysis of alternatives or as a separate document)
 - Justification for selected alternative
-

(continued on next page)

27.1 How to Recognize an Analysis of Alternatives *(continued)*

Size of the Analysis of Alternatives

FIRMR 201-20.202

As you learned in Chapter 26, the FIRMR requires agencies to conduct an analysis of alternatives *commensurate with the size and complexity of the need*.

If the acquisition is large and complex, an analysis of alternatives may be over a hundred pages and involve many people over many months. On the other hand, if the FIP resources acquisition is fairly simple and low-cost, the alternatives analysis may be only a page or two prepared and approved in less than a week by technical and program personnel.

Keep in mind that the analysis of alternatives must fit the acquisition and be commensurate with the size and complexity of the requirement.

Types of Alternatives

As you know, an analysis of alternatives addresses two broad categories of alternatives: technical and acquisition. See the following table.

ALTERNATIVES: TECHNICAL AND ACQUISITION
<ul style="list-style-type: none"> • <i>The analysis of technical alternatives or technical solutions</i> is completed by technical specialists who understand all the technical requirements. The purpose of this part of the analysis of alternatives is to examine all the technical alternatives and identify the technical advantages and disadvantages of each alternative, including any special risks.
<ul style="list-style-type: none"> • <i>The analysis of acquisition alternatives</i> is normally completed by contracting and technical personnel. The purpose of this part of the analysis of alternatives is to evaluate the acquisition (potential source) alternatives and options.

Although the format of the analysis of alternatives may vary among agencies—or even among acquisitions in the same agency—you should be able to recognize an analysis of alternatives because it identifies technical and acquisition alternatives.

Remember: An alternatives analysis can take many forms. It may take the form of a one-page justification attached to a requisition or a several hundred page document formally entitled “Analysis of Alternatives.” It may be called an alternatives analysis, analysis of alternatives, statement of alternatives, or options determination. The only common element among such documents may be your determination that *the document describes alternatives*.

27.2 Key Factors for a Successful Analysis of Alternatives

Key Factors for Successful Analysis of Alternatives

Even *before you get started* on the step-by-step procedure for analyzing an analysis of alternatives, you should understand six key factors that are necessary for success. They are:

- Establishing realistic assumptions and unrestrictive constraints,
- Identifying a broad range of viable alternatives,
- Devoting sufficient resources to the project,
- Justifying and documenting the rationale for selection of the most advantageous alternative,
- Documenting costs and benefits that will serve as performance goals, and
- Reassessing alternatives periodically throughout the process.

These factors are addressed in the following table.

Key Factors for Successful Analysis of Alternatives	
1.	<p><i>Establish realistic assumptions and unrestrictive constraints.</i> Remember, EVERY requirement is based on some assumptions and some constraints.</p> <p>An assumption is an informed guess about the future. If assumptions are NOT reasonable, the agency may NOT acquire resources that meet its needs. For example, if an agency seriously understates its current or future workload, it may buy too small a computer to meet its needs.</p> <p>A <i>constraint</i> is a limitation or restriction that applies to the acquisition. Common constraints include cost, time, technical limits, organizational, and political constraints. <i>If constraints limit competition</i>—such as the constraint requiring compatibility—<i>then the constraint must be justified.</i></p>
2.	<p><i>Identify a broad range of alternatives.</i> The purpose of an alternatives analysis is to identify <i>first</i> a broad range of technical and acquisition alternatives and <i>next</i> identify the most advantageous alternative (considering costs and benefits) out of alternatives that meet the agency needs. You must be aware that sometimes technical personnel use an alternatives analysis to eliminate from serious consideration all but the favored technical alternative.</p>

(Table continued on next page)

27.2 Key Factors for a Successful Analysis of Alternatives *(continued)*

Key Factors for
Successful
Analysis of
Alternatives
(continued)

3.	<i>Devote the appropriate level of effort to the analysis of alternatives.</i> If the FIP resource acquisition is large, your agency should devote a significant amount of personnel, time and energy to the development of an analysis of alternatives. If this has not been done, the risk of acquisition of failure is greater.
4.	<i>Justify and document the rationale for selection of the most advantageous alternative.</i> Selection of the most advantageous alternative must consider cost and must NOT rely on unduly restrictive (unjustified) requirements or constraints. <i>Selections that choose an alternative without a cost comparison may be overly restrictive.</i>
5.	<i>Document costs and benefits to serve as performance goals.</i> Every acquisition should have goals so that the agency can later decide if the acquisition was successful. (GSA now asks for this performance information when agencies request Delegations of Procurement Authority for major acquisitions.) The best way to set goals is to base them on measurable objectives, projected costs and benefits of the most advantageous alternative. By documenting its projections, program and contracting personnel can measure whether the system cost was within agency estimates. Projections should also identify benefits to be derived by the system.
6.	<i>Reassess alternatives periodically.</i> Keep an eye on the market. Firms constantly develop and release new technologies or new capabilities. Remember, a complex FIP resource acquisition can take up to two years or more from start to finish. Much can happen during that time which could affect whether a selected alternative remains the most advantageous.

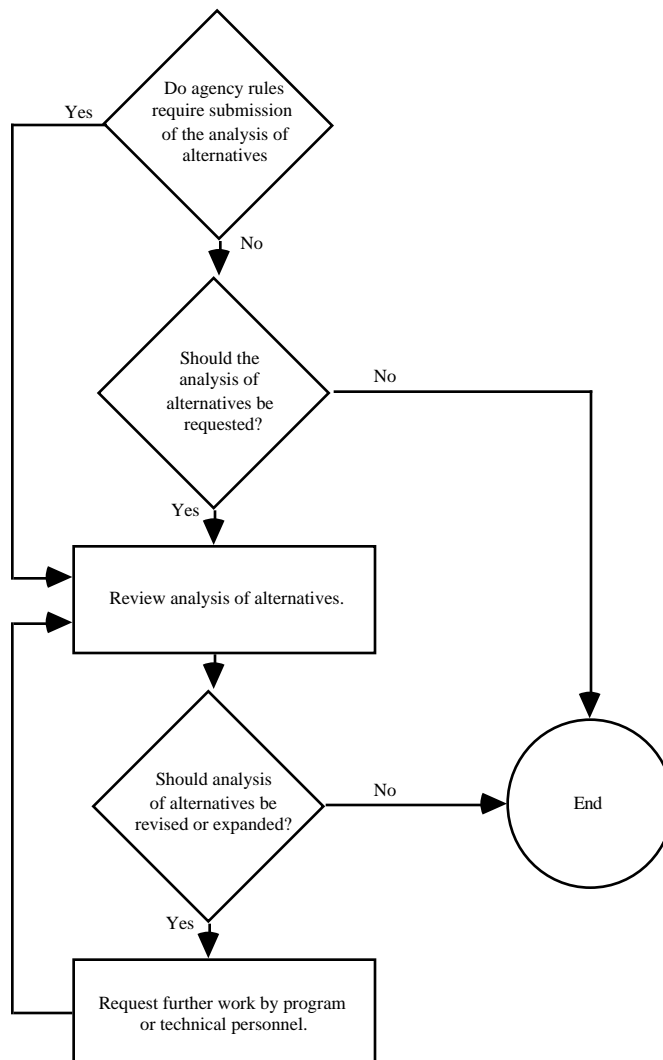
27.3 Overview of the Analytical Process: Critiquing the Analysis of Alternatives

Analytical Process

The process of critiquing an analysis of alternatives involves three primary stages:

- Determine if there are any agency-unique requirements to be considered in an analysis of alternatives.
- Determine if the analysis of alternatives has been or should be submitted.
- Review the alternatives analysis and advise the requiring activity if it should be revised or expanded.

The flow chart below illustrates the decision process.



27.3 Overview of the Analytical Process: Critiquing the Analysis of Alternatives *(continued)*

Determining Agency-Unique Requirements

Federal agencies often have their own rules about what must be included in procurement-related studies. *Such agency-unique rules are in addition to those established by the FIRM.*

For example, one agency specifically requires its activities to consider using its centralized ADP center to meet agency requirements.

You should review agency policies and procedures to determine if there is a specific format or content for an analysis of alternatives. Keep in mind that this chapter addresses the FIRM requirements and some other suggested considerations; you must add your agency's rules to the questions and notes in this chapter.

Determining Submission Requirements

In addition to rules about the content of an alternatives analysis, your agency may specify procedures for submission, review, approval, and dissemination.

Some agencies require, for acquisitions above a certain threshold, that a copy of an analysis of alternatives be provided to the IRM and contracting offices. Others require that activities certify that an alternatives analysis has been completed and provide the date of approval. Some agencies have no internal requirements at all.

Your agency may have specific requirements for submission, approval, and dissemination of the alternatives analysis.

27.3 Overview of the Analytical Process: Critiquing the Analysis of Alternatives *(continued)*

Special Requests for Submission

Even if your agency does not require by policy or procedure submission of an alternatives analysis, the contracting officer normally has sufficient authority to request a copy. When would this be wise?

As with the requirements analysis, contracting offices should consider requesting a copy of the alternatives analysis for review when a program or an acquisition:

- Does not make sense,
- Is critical to the agency's mission,
- Involves expenditure of large sums over the system's life,
- Is unusually restrictive of competition,
- Is of compelling interest to private firms, or
- Has a history of protests.

Keep in mind: If a contracting office requests a copy, the contracting office is essentially obligated to review it.

27.4 How to Review an Analysis of Alternatives

Reviewing an Analysis of Alternatives

You cannot always rely on the requiring activity or technical staff to conduct thorough studies without some guidance. Sometimes requirements personnel will do an excellent job defining the technical alternatives but will overlook FIRMR requirements to address acquisition alternatives.

Therefore, when you receive an analysis of alternatives—whether as part of a standard purchase request, after special request by the contracting office, or as a result of participation on an agency acquisition team—*it is your responsibility to review the document.*

Understanding the Analytical Process

As you learned in Chapter 24, analysis means the methodical application of independent thought to a problem or process, its elements, their relationships, and consequences. *Inherent in the nature of analysis is a lack of comprehensive and set rules that dictate decisions.*

Analyzing an analysis of alternatives requires first that you review it against the FIRMR requirements *and* your agency's requirements. You also review the analysis of alternatives to determine if it appears to consider a broad range of alternatives to meet the need. And you also need to consider whether the analysis of alternatives has the effect of unduly restricting competition.

You must understand how broad your analysis can be so that you can exercise independent thought and judgment. *Although this chapter provides suggested questions, it is imperative for you to understand that they are an aid to—not a replacement of—your analysis.*

Review for Overall Content

Before getting into the details of an analysis of alternatives, you should complete a quick review of the overall document content. You first want to understand how the document is organized. This will aid you in making a preliminary assessment of how complete the analysis of alternatives is when you review one prepared by your activity.

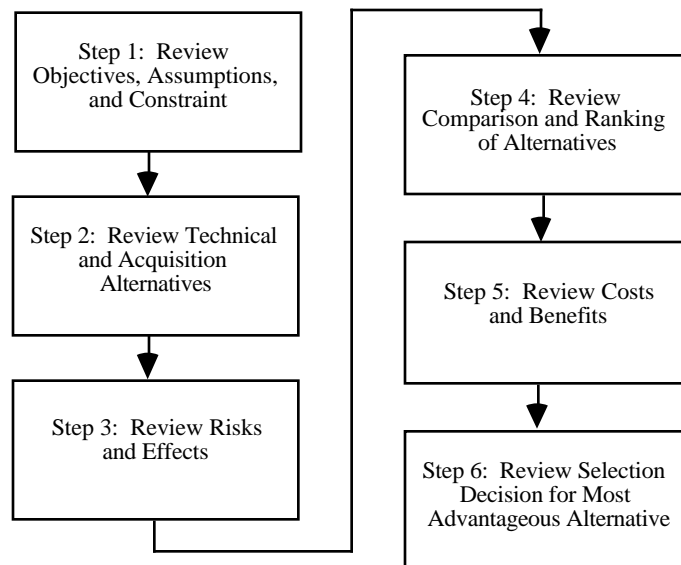
27.4 How to Review an Analysis of Alternatives *(continued)*

Review for Detail

After you have a preliminary assessment of what is included, you need to review the analysis of alternatives in detail. In all you read, you should consider:

- Do I understand the alternatives the requiring activity considered?
- Were any logical alternatives or sources apparently not considered?
- Is the basis for selecting the most advantageous alternative clear and compelling?
- Is the information clear, complete, and convincing?

The following flowchart and sections of this chapter address in more detail the steps involved in reviewing an analysis of alternatives.



Remember that to perform the last two steps you may need to refer to your benefit-cost analysis.

(continued on next page)

27.4 How to Review an Analysis of Alternatives *(continued)*

Step 1: Review Objectives, Assumptions, and Constraints

All acquisitions should have clearly stated objectives. If you do not see objectives or goals in the analysis of alternatives, check the requirements analysis. Objectives are important because the purpose of an analysis of alternatives is to identify alternatives that meet the agency's needs and objectives.

You should also review all assumptions to make sure they are clear and reasonable. Imagine that you are buying servers (computers) for a local area network and your review of the analysis of alternatives reveals an assumption that there will be no growth in workload over the systems life. This assumption does not sound reasonable because most automation projected is conducted to reduce personnel and/or increase productivity. To increase productivity requires growth in capacity. Therefore, you should question the requiring activity.

You should look carefully at the constraints because these often limit competition, sometimes without justification. For example, a constraint limiting an acquisition to compatible resources should be backed up by a justification and, in some instances, a conversion study. What about constraints that call for award of "lots" to a single contractor or a requirement for "only new" resources? These constraints limit competition and must be justified (according to the FIRMR) in terms of how the minimum needs are to be met through utilization of these constraints.

Step 2: Review Technical and Acquisition Alternatives

As you learned in Chapter 26, there are three major stages involved in identifying alternatives:

- Surveying the market
- Identifying technical solutions
- Identifying acquisition (potential source) solutions

Your review of an analysis of alternatives considers all three stages. You should also determine whether nonmandatory programs or contracts were considered or may offer the most advantageous alternative.

(Topic continued on next page)

27.4 How to Review an Analysis of Alternatives *(continued)*

Step 2: Review
Technical and
Acquisition
Alternatives
(continued)

Market survey and technical solutions. Your primary interest in this area is to determine whether the market survey is thorough and reveals the full range of technical solutions available in the market. Remember, the *initial* objective is to identify a broad range of alternatives—not just one alternative—that will fulfill a requirement.

For example, in a market survey for commercial software, you determine whether the survey fairly considered a broad range of available software or only considered one or two best known or most popular alternatives. This is important, because there may be a great difference in price and functionality between software packages.

Make sure that the analysis is fair and does not jump to any unsupported conclusions. This sometimes happens when one solution seems to stand out from all the others. Remember: If the analysis of technical alternatives clearly overlooks one technical option or does not sufficiently analyze that option, you should question it.

Be careful here. Jumping to an unsupported technical conclusion without fairly examining other technical alternatives limits competition and can be a cause for a later protest.

Keep in mind that technical alternatives discussed in the analysis depend on the nature of the planned acquisition.

(Topic continued on next page)

27.4 How to Review an Analysis of Alternatives *(continued)*

Step 2: Review Technical and Acquisition Alternatives (continued)

Acquisition solutions. Your primary interest in this area is to be sure that a requiring activity has considered alternatives required by the FIRMR. You should recall that they are:

- Using GSA’s mandatory-for-use programs when they will meet agency requirements,
- Using GSA’s mandatory-for-consideration programs when they will meet requirements *and* their use is the most advantageous alternative,
- Reassigning or reutilizing FIP resources no longer needed for other purposes in the agency or other agencies,
- Sharing FIP resources, and
- Acquiring resources by contracting, including small purchase and small and disadvantaged business set-asides.

Mandatory-for-Use	Mandatory-for-Consideration
<ul style="list-style-type: none"> • FTS2000 network • Federal Software Exchange Program • Federal Secure Telephone Service (FSTS) • Financial Management Systems Software (FMSS) Multiple Awards Schedule (MAS) Contracts program 	<ul style="list-style-type: none"> • Excess FIP Equipment • Consolidated local telecommunications service • National security and emergency preparedness (NSEP) • Information systems security (INFOSEC)

As you learned in Chapter 26, the FIRMR’s “mandatory” requirements are only *mandatory to the extent that they apply to your acquisition*. For example, the requirement to consider FTS2000 applies *if* your acquisition involves in whole or part intercity telecommunications needs.

(Topic continued on next page)

27.4 How to Review an Analysis of Alternatives *(continued)*

Step 2: Review Technical and Acquisition Alternatives (continued)

Nonmandatory Programs and Existing Contracts. As you learned in Chapter 26, GSA makes available to Federal agencies a broad range of nonmandatory programs and contracts. These can often serve as cost-effective solutions for meeting requirements. You should be aware that *frequently technical personnel are unaware of these alternatives*. You should determine if any of these alternatives might meet the need but were overlooked.

If you need to review these nonmandatory and mandatory requirements, refer to Chapter 26. You may especially want to review the table on page 26-10 for a listing of representative technical and acquisition alternatives.

Step 3: Review Risks and Effects

The analysis of alternatives should consider the risks and effects for each feasible alternative. Your review should determine that:

- agency risks have been assessed,
- risks seem appropriate, and
- risks do not unduly restrict competition.

Identification of risk is a primary way that the top two or three alternatives are identified for further detailed technical and cost analysis. Remember that the agency may have initially identified four, six, or even ten feasible alternatives. But it is too expensive to develop costs and benefits for so many alternatives. So the two or three alternatives most likely to meet the needs and objectives with minimal risk are selected for benefit-cost analysis.

Risks or effects may relate to program, equipment, software, information, organizational, operational, developmental, space and facility, or cost impacts. The table below shows examples of the types of factors you may encounter in an analysis of alternatives, with examples of how they might be addressed.

(Topic continued on next page)

27.4 How to Review an Analysis of Alternatives *(continued)*

Step 3: Review Risks and Effects (continued)

Factor	Risk or Effect	Example
<i>Obsolescence</i>	Resources that become out-of-date over the systems life	“This alternative (with evaluated upgrade options) will meet agency requirements for a minimum of seven years.”
<i>Availability</i>	Loss of resources due to scheduled maintenance or downtime	“This alternative will provide an availability rate of at least 95% for all planned users.”
<i>Reliability</i>	Loss of resources due to corrective maintenance	“This alternative offers the best reliability record and should not require corrective maintenance more than one hour for each 1,000 hours of operation.”
<i>Maintainability</i>	Ease and speed of repairing or replacing defective or failed system components	“This alternative requires the most difficult and time-consuming maintenance support: it requires at least two full time service personnel, along with on-site stockage of 37 line items of repair parts.”
<i>Expandability</i>	Ease and ability of expanding to meet anticipated growth	“This alternative offers the greatest expandability with the least effort: it is the only alternative that makes full use of existing capacity and requires no training.”
<i>Flexibility</i>	Ease of accommodating workload changes	“This alternative offers the least flexibility. The system design allows operation at only four sites simultaneously. Access to additional sites cannot be achieved without shutting down computer access to initial operating sites.”
<i>Security</i>	Measures to prevent unauthorized access, tampering, or destruction	“This alternative offers a lesser defense against unauthorized access because it can be accessed from non-Government sites.”
<i>Privacy</i>	Measures to protect personnel data or other sensitive personal information	“This alternative does not support compliance with provisions of the Privacy Act, because it might permit unauthorized access to employee personnel data.”

(Table continued on next page)

27.4 How to Review an Analysis of Alternatives *(continued)*

Step 3: Review Risks and Effects (continued)

Factor	Risk or Effect	Example
<i>Personnel</i>	Effect on support personnel including training or skill improvements	“This alternative is the only one that makes use of object-oriented programming: it will support superior productivity and require the least retraining.”
<i>User Acceptance</i>	Effect on the user community, especially the effect of new methods and procedures on established routines	“The imaging technology option is the only alternative that will simplify document flow procedures, since all departments would be able to retrieve documents on demand through computer imaging technology, rather than requesting a paper (hard copy) version through channels. Our survey indicates this will have a very favorable impact on user acceptance.”
<i>Accountability</i>	Ability to track and measure system activity and account for system use	“MaxTrax is the most accountable system because it is the only alternative that logs on each user by number and provides a full set of reports to the system supervisor.”

Step 4: Review Comparison and Ranking of Alternatives

You should next review how your agency ranked alternatives. *Methods used to rank alternatives should be documented in the analysis of alternatives*. Ranking criteria should be reasonable and relate to the acquisition mission and objective. Examples of ranking criteria include:

- Minimizing personnel expenses over the systems life,
- Limiting development time so resources are in use quickly,
- Retaining a centralized information repository for reasons of security, *or*
- Distributing processing to minimize point-of-entry delays.

27.4 How to Review an Analysis of Alternatives *(continued)*

Step 5: Review Costs and Benefits

You should next review how your agency evaluated costs and benefits and ensure that several standards are met. These include evaluation of costs and benefits are evaluated:

- For at least three alternatives
- Over the projected systems life
- With discounting to present value.

If benefits do not exceed costs over the systems life, justification for the expenditure should be compelling. If you need to refer to these requirements, see Chapter 28.

Step 6: Review Selection Decision for Most Advantageous Alternative

The purpose of an analysis of alternatives (and benefit-cost analysis when it is a separate document) is to determine the one most advantageous alternative among those alternatives that satisfy the Government's requirements.

Most advantageous alternative—the alternative that provides the greatest value to the Government over the system life, in terms of price, cost, quality, performance and any other relevant factors. (FIRM 201-4.001)

By definition, the determination of the most advantageous alternative must include consideration of cost. You should closely review any analysis of alternatives that excludes all but one alternative without a cost evaluation.

The most advantageous alternative means an alternative that offers the best mix of technical benefits and price. It is not necessarily the “best” technical alternative at the highest price. Nor is it necessarily the lowest cost alternative: that delivers fewer technical benefits. The most advantageous alternative means that for the dollars expended, the alternative delivers maximum benefits.

This is similar to a “best value” evaluation strategy. That is, the Government determines that it is worthwhile to pay more than the lowest price offered, so long as the benefits (advantages) outweigh the additional costs (disadvantages). (Benefits may include nonquantifiable as well as quantifiable advantages.)

(Topic continued on next page)

27.4 How to Review an Analysis of Alternatives *(continued)*

Step 6: Review
Selection Decision
for Most
Advantageous
Alternative
(continued)

In the following table, an agency is considering several alternatives for system development services for a computer system, with different mixes of in-house support, contractor support, and custom software and off-the shelf software. Which is the more advantageous alternative?

COMPARISON OF ALTERNATIVES		
	Price	Completion Time
Alternative A	\$1,000,000	100 days
Alternative B	\$1,500,000	30 days
Alternative C	\$5,000,000	15 days

If price is the main or only consideration, you would conclude that Offer A is clearly the most advantageous alternative.

However, suppose the computer system will provide aid to victims of a natural disaster or hungry refugees? What's the value of human suffering or a human life? Or suppose the system is so essential to national defense that it must be installed as soon as possible, but not later than 25 days. Are 5 days worth \$3,500,000? Is the most advantageous alternative B or C? What would your decision be? Should the 25 day requirement be reassessed? Should the dollar estimates be rechecked? What are the risks in choosing B (lower cost) over C (earlier completion date)? What are the risks in choosing C (earlier completion date) over B (lower cost)?

If you were the contracting officer or contracting specialist in this example, you would certainly want to check the analysis of alternatives that selected either A, B, or C very carefully. You would want to make sure the analysis didn't leave out any important factors, use faulty or obsolete market data, or arrive at conclusions unsupported by facts.

Fortunately, most analyses of alternatives are not life and death matters, nor as dramatically different as this example. However, you must be prepared to review each analysis of alternatives to make sure that the conclusions are reasonable and are based on a valid analysis of the available alternatives.

27.4 How to Review an Analysis of Alternatives *(continued)*

Suggested Questions

You can use questions such as ones that follow in your analysis. Remember to add your agency's requirements for content of analyses of alternatives to your worksheets. Remember also to use the list as an aid to your review—not as strict rules for content.

Suggested Questions: Reviewing an Analysis of Alternatives		
Step	Action	Considerations
1	Review objectives, assumptions, and constraints	Does the analysis of alternatives (or the requirements analysis) indicate the procurement's objectives?
		Do the assumptions seem reasonable?
		Do the constraints limit the range of alternatives?
		Is the limitation justified?
2	Review technical and acquisition alternatives	Does the analysis of alternatives document the results of the market survey?
		Are a broad range of technical and acquisition solutions considered?
		Are GSA's mandatory-for-use programs considered? <ul style="list-style-type: none"> • FTS2000 network • Consolidated local telecommunications service • NSEP program • FMSS MAS contract program
		Are GSA's mandatory-for-consideration programs considered? <ul style="list-style-type: none"> • Federal Software Exchange Program • Excess FIP equipment • Federal Secure Telephone Service • Information Systems Security
		Are reassignment, reutilization, and sharing considered?
		Is contracting, including small purchase and small and disadvantaged business set-asides, considered if mandatory sources are unavailable?
		Are nonmandatory programs and existing contracts that might satisfy the need considered as alternatives?
		Are any logical alternatives or sources not considered?
		Does the analysis of alternatives conclude that <i>only one solution</i> will meet the need—rather than out of several <i>one best meets</i> the need?

27.4 How to Review an Analysis of Alternatives *(continued)*

Suggested
Questions
(continued)

Suggested Questions: Reviewing an Analysis of Alternatives		
Step	Action	Considerations
3	Review risks and effects	Are risks determined for viable alternatives?
		Are the risks appropriate?
		Do the risks unduly restrict competition?
4	Review comparison and ranking of alternatives	If there are too many alternatives to evaluate for costs and benefits, are alternatives ranked?
		Is the basis for ranking clear and reasonable?
		Is the analysis of alternatives <i>improperly</i> used to eliminate (without consideration of cost) all but the favored technical solution from serious consideration?
5	Review costs and benefits	Are costs and benefits evaluated for three alternatives
		Are costs and benefits evaluated over the projected systems life?
		Are costs and benefits discounted to present value?
		Is the benefit-cost evaluation the basis for selection of the most advantageous alternative?
		Can costs and benefits be used for performance measures?
6	Review selection decision for most advantageous alternative	Does the solution support the acquisition's objectives?
		Is the rationale for selection of the most advantageous alternative documented?
		Is cost considered?
		Is the basis for selecting the most advantageous alternative clear and compelling?
		Is the selection justified?
In Summary		Is the size, scope, and complexity of the alternatives analysis commensurate with the size, scope, and complexity of the acquisition?
		Do I understand the alternatives the requiring activity considered?
		Is the information clear, complete, and convincing?

SUMMARY

In this chapter, you learned how to analyze an analysis of alternatives. You learned that you should review both technical and acquisition alternatives to make sure that the selection of the most advantageous alternative is made from a broad range of acceptable alternatives. In the next chapter, you will learn benefit cost and present value analyses.

CHAPTER 28

BENEFIT-COST AND PRESENT VALUE ANALYSIS

Chapter Vignette

“I can see that determining the best single alternative in a FIP acquisition requires a number of steps and a lot of thought,” said Mark.

“It can seem involved,” Marcia replied, “but taking them a step at a time simplifies the process. Remember that after the alternatives analysis identifies several possible alternatives, the agency must choose the best alternative to determine the acquisition strategy. Remember also that ‘best’ in a benefit-cost analysis does not mean just the best technical solution or the lowest cost solution. It means the best solution considering both costs and benefits. Let’s talk about how that is done.”

Course Learning Objectives

At the end of this chapter, you will be able to:

Overall:

Describe the concept and purpose of benefit-cost and present value analysis.

Individual:

- 28.1 Explain the requirements for and purpose of a benefit-cost analysis.
- 28.2 Explain the difference between a benefit-cost and cost effectiveness analysis.
- 28.3 Explain the concept, purpose, and key factors of present value discounting.
- 28.4 Explain the requirements for present value analysis.
- 28.5 Explain how and where present value analysis is used in the acquisition process.
- 28.6 Describe the steps involved in a benefit-cost analysis.
- 28.7 Define unique terms used in present value analysis.

Chapter Overview

Scope

As you learned in Chapter 26, the alternatives and benefit-cost analyses help determine respectively:

- What alternatives are available to meet my need?
- Which alternative is the most cost-beneficial?

Chapter 26, *The Purpose and Content of an Analysis of Alternatives*, addresses the first question. The alternatives analysis seeks to determine *many ways* to meet the need. This chapter on benefit-cost and present value analysis addresses the second question. The benefit-cost analysis seeks to determine the *most cost-beneficial way* to meet the need.

Remember that for large acquisitions, these two questions are often answered with separate documents: the alternatives analysis and the benefit-cost analysis. For smaller acquisitions, both questions may be answered by a single document.

In this chapter, *Benefit-Cost and Present Value Analysis*, we will focus on the process of selecting the *best alternative* for acquiring needed goods and services, considering both costs and benefits. You will also learn about present value analysis, including when and how present value is used in the acquisition process.

References

To understand fully the topics discussed in this chapter, you may need to refer to regulatory and policy documents:

- OMB Circular A-130, *Management of Federal Information Resources*;
 - OMB Circular A-94, *Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs*;
 - OMB Circular A-11, *Preparation and Submission of Budget Estimates*; and
 - FIRM 201-4.001, 201-20.203-2, 201-39.1401, 201-39.1402-1, and 201-39.1501-1.
-

Chapter Overview *(continued)*

Topics in This
Chapter

The major topics in this chapter are:

SECTION	TITLE	PAGE
28.1	Requirements for Benefit-Cost Analysis	28-5
28.2	Benefit-Cost and Cost Effectiveness Analysis	28-7
28.3	Overview: Benefit-Cost Analysis	28-9
28.4	The Factors of Time and Interest in Present Value Discounting	28-10
28.5	Analysis and Present Value Discounting	28-18
28.6	Steps in Benefit-Cost Analysis	28-20
28.7	Unique Terms Used in Benefit-Cost and Present Value Analysis	28-26

28.1 Requirements for Benefit-Cost Analysis

Introduction Federal policies related to benefit-cost analysis appear in both OMB Circulars and in the FIRMR. *OMB's policies are the most important and have precedence over the FIRMR.* This is important for you to understand, because as presently written, the FIRMR contradicts OMB's policies.

OMB Policies OMB has published policies related to benefit-cost analysis in three circulars:

- OMB Circular A-130, *Management of Federal Information Resources*;
- OMB Circular A-94, *Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs*; and
- OMB Circular A-11, *Preparation and Submission of Budget Estimates*.

The newest policies are in OMB Circular A-130, Transmittal Memorandum No. 2, issued in July 1994. It requires Federal agencies to “prepare, and update as necessary throughout the information system life cycle, a benefit-cost analysis for each information system . . . at a level of detail appropriate to the size of the investment.”

This policy had also been previously published in the annually updated OMB Circular A-11. For example, in 1993 OMB Circular A-11, Transmittal Memorandum No. 64, section 43-7, indicated:

“Agencies are required to prepare benefit-cost analyses for all proposed investments in information systems at a level of detail appropriate to the size of the investment the project will require. Agencies must submit such analyses [as part of the budget process] before any major information system initiatives can be considered for funding. However, OMB may require submission of the benefit-cost analysis for any information system initiative contained in the agency budget request.”

So OMB's policy is clear. A benefit-cost analysis is required for *every* proposed acquisition of information technology and is maintained for every operational information system through its life cycle.

(continued on next page)

28.1 Requirements for Benefit-Cost Analysis *(continued)*

OMB Policies (continued)

OMB Circular A-94 applies in general “to any analysis used to support Government decisions to initiate, renew, or expand programs or projects which would result in a series of measurable benefits or costs extending for three or more years into the future.” It provides detailed economic policies for benefit-cost analysis, cost effectiveness analysis, and lease-purchase analysis. For example, these policies address:

- When cost effectiveness analysis may be used instead of benefit-cost analysis, and
- What discount rate to use for present value and lease-purchase analysis.

You will learn more about cost effectiveness analysis, discount rates, and present value later in this chapter and about lease-purchase analysis in the next chapter.

FIRMR Policies

FIRMR 201-20.203-2

FIRMR 201-20.203-2, *Cost for each alternative*, provides:

- (a) In the analysis of alternatives, agencies shall calculate the total estimated cost, using the present value of money, for each feasible alternative unless the anticipated cost of the acquisition is \$50,000 or less. The total estimated cost for each alternative shall include system life cost for that alternative and any other costs, that can be identified with the alternative, incurred either before or after the system life period.
- (b) When the anticipated cost of the acquisition is \$50,000 or less, the total estimated cost may be limited to an analysis demonstrating that the benefits of the acquisition will outweigh the costs.

OMB policy states that benefits be identified and quantified except in several specific circumstances when a cost effectiveness analysis may be conducted instead of a benefit-cost analysis.

So remember OMB’s policies in OMB Circular A-94. *Benefit-cost analyses commensurate with the size and complexity of the acquisition are required for **all** information systems and information technology procurements.*

28.2 Benefit-Cost and Cost Effectiveness Analysis

What is a Benefit-Cost Analysis?

OMB Circular A-94 defines benefit-cost analysis as “a systematic quantitative method of assessing the desirability of Government projects or policies when it is important to take a long view of future effects and a broad view of possible side-effects.”

More simply, a benefit-cost analysis is the process of identifying and measuring costs and benefits over the systems life, normally for several competing alternatives. As you learned in Chapter 27, cost-benefit analysis is similar to a best value acquisition strategy. Both costs *and* benefits affect the determination of the most advantageous solution.

Let’s consider how we apply benefit-cost analysis (perhaps without thinking about it) in everyday situations. Suppose you are shopping for a car. You would be likely to consider cost first, in terms of your budget and financial plans. Once you determine your price range, you would probably go look at several models. As you shop and compare, you refine and quantify the costs. You might consider not only purchase costs, but also operational costs such as fuel efficiency, maintenance costs, and estimated repair costs. But the whole time you are considering costs, you are also considering benefits: two door or four door, sun roof or not, anti-lock brakes or not? These benefits may require extra costs, but you may value the benefit and decide to pay extra. In other words, you value the safety benefit of the anti-lock brakes or the luxury of sunshine. These values may be difficult or impossible to quantify. What if anti-lock brakes help you avoid a serious accident? If they do, the several hundred dollar investment was a bargain — even though the effect and expense of an avoided accident can’t be easily calculated.

Most of us never write down the process of evaluating costs and benefits in our own decisions. But as Federal acquisition professionals, we are responsible to the public for the wise expenditure of tax dollars. We must carefully analyze costs and benefits over time and base our selection decision on those costs and benefits. We then record the rationale for our decision selecting one alternative as the most advantageous. We call this the benefit-cost analysis.

28.2 Benefit-Cost and Cost Effectiveness Analysis *(continued)*

What is a Cost Effectiveness Analysis?

OMB Circular A-94 defines cost effectiveness analysis as “a systematic quantitative method for comparing the costs of alternative means of achieving the same stream of benefits or a given objective.”

More simply, a cost effectiveness analysis is a benefit-cost analysis without the benefits. A cost effectiveness analysis is conducted only in situations when:

- Costs will differ but benefits will be equal *or*
- Benefits cannot be measured.

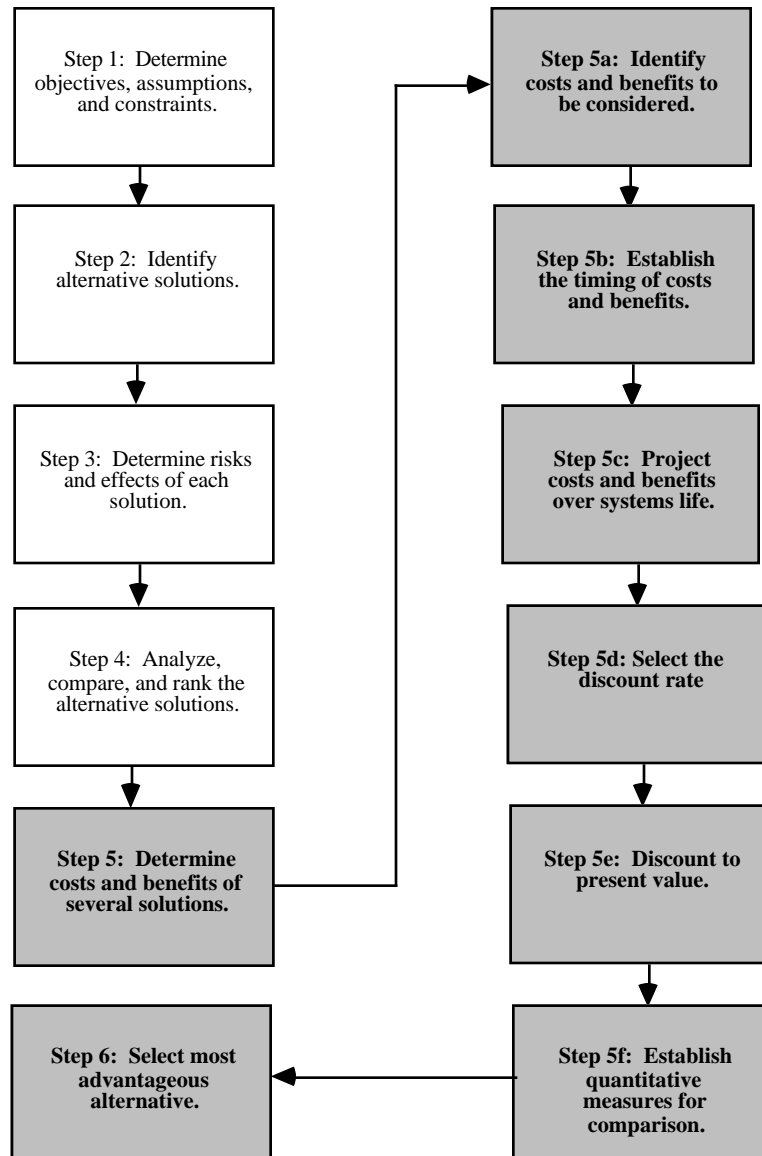
OMB suggests that analyses of alternatives for defense systems often fall in the second category.

You should know that most analyses for information technology will have quantifiable (measurable) benefits. It can be difficult to measure benefits, but it is normally possible *with some effort*. For example, differences in speed, capacity, and the value of compatibility are measurable benefits. If your acquisition team says there are no benefits or that benefits can't be measured, look closely.

28.3 Overview: Benefit-Cost Analysis

Overview of Benefit-Cost Analysis

In Chapter 26, you learned that the process of analyzing alternatives and selecting the most advantageous alternative includes the step to “determine costs and benefits of several solutions.” In this chapter, we will take a closer look at what is involved in analyzing costs and benefits. The flowchart below shows the key steps in the benefit-cost analysis and their relationship to other steps in the process.



You will notice that there are some new terms in this flowchart. Before discussing the key steps in detail, we’ll consider what is meant by discounting and present value.

28.4 The Factors of Time and Interest in Present Value Discounting

Why is time important?

There's an old saying: time is money. We might say here: time is money, especially in a benefit-cost analysis.

We understand this intuitively in our daily lives. If someone says — *Do you want the \$20 I owe you today or next pay period?* — most of us would answer “today.” But if someone says — *Can you pay me the \$20 you owe me today or do you want to wait until next pay period?* — most of us would answer “next payday.”

This is what is known as the “time value of money.” One measure of the time value of money is interest. We're all familiar with this. If we have \$100 in a savings bond earning 7 percent interest, our \$100 will be worth \$107 next year.

$$\$100 \times 1.07 = \$107$$

What is discounting?

Discounting is the opposite of calculating interest. It answers the question, what would next year's \$107 savings bond be worth in today's dollars?

One simple way to find the answer to this question is to use a discount table. For example, the table below is a simple table for a 7 percent discount rate.

Years	Discount Factor
1	.9346
2	.8734
3	.8163
4	.7629
5	.7130

Using our hypothetical savings bond example, we would take the value of next year's savings bond (\$107) and multiply it by the one year discount factor of .9346. The answer is \$100. The calculation looks like this:

$$\$107 \times .9346 = \$100$$

That's all there is to present value discounting.

28.4 The Factors of Time and Interest in Present Value Discounting

(continued)

What is Present Value Analysis?

You now know that present value discounting converts the value of tomorrow's dollars into today's dollars. Another way to describe this is that *present value analysis considers the effect of time and the value of money in financial decisions*. Present value discounting is based on the economic fact that a dollar today is worth more than a dollar at some time in the future. This fact affects costs and benefits differently. We want to achieve benefits today and defer costs until next year. So we need to consider time when making financial decisions.

Effect of Timing on Present Value Results

Let's consider a somewhat unlikely situation. Suppose you owe Gwyn \$1000 which is due to be paid next year. On the other hand, Jack owes you \$1000, also due to be paid next year. And you have \$1000 in the bank. Your net worth (assets less liabilities) would be \$1000, expressed in present value.

Note in the table below that \$1,000 and \$1,070 next year are discounted to \$935 and \$1,000 respectively in today's dollars.

	This Year	Interest	Next Year	Discount Rate	Present Value
Gwyn			(\$1,000)	.9346	(\$935)
Jack			\$1,000	.9346	\$935
Bank	\$1,000	1.07	\$1,070	.9346	\$1,000
Net Worth					\$1,000

Next suppose that Gwyn and Jack are going on a world cruise and won't be back for a year. Each asks, "Do you want to settle now, or later?" What is the effect of your decision?

(Topic continued on next page)

28.4 The Factors of Time and Interest in Present Value Discounting

(continued)

Effect of Timing
on Present Value
Results
(continued)

Most of us would ask Jack to pay us before he leaves. Many of us would promise to pay Gwyn upon her return. Assuming that you ask Jack to pay, put the money in the bank, and tell Gwyn you'll pay her later, your decision would increase your net worth expressed in present value by \$65.

	This Year	Interest	Next Year	Discount Rate	Present Value
Gwyn			(\$1,000)	.9346	(\$935)
Jack					\$0
Bank	\$2,000	1.07	\$2,140	.9346	\$2,000
Net Worth					\$1,065

How would this change if you did the opposite? Suppose you wanted Jack to hold onto the money in case of emergency, but wanted to settle your debt (using your bank fund) with Gwyn before she left? This decision would decrease your net worth expressed in present value by \$65.

	This Year	Interest	Next Year	Discount Rate	Present Value
Gwyn					
Jack			\$1,000	.9346	\$935
Bank					
Net Worth					\$935

Notice in the examples above that the timing of payments determines whether your net worth is \$1,000 or \$1,065 or \$935. Notice also that you can quantitatively analyze the effect of your decisions. *So you can see that the timing of payments is important to financial decisions.*

Effect of Discount
Rate on Present
Value

Just as the timing of payments can affect financial decisions, so can discount and interest rates. For example, when interest rates are high, many of us try to save more and borrow less. When interest rates are low, we're more likely to borrow — refinancing a mortgage or locking in low rates for a new home, remodeling, or car.

Let's consider how we would measure the effect of the discount rate on an acquisition decision.

(Topic continued on next page)

28.4 The Factors of Time and Interest in Present Value Discounting

(continued)

Effect of Discount
Rate on Present
Value
(continued)

Assume that you are buying a new computer system. Two vendors offer to sell you the identical computer system for \$10,500. However, Vendor #1 demands cash on delivery. Vendor #2 will provide you an interest-free loan for one year. From whom would you buy the computer system? You would probably buy it from Vendor #2. But how much difference would it make? Present value discounting provides the answer: at 7 percent, \$687.

	Vendor #1	Vendor #2
This Year	\$10,500	
Next Year		\$10,500
7% Discount Factor	1	.9346
Present Value	\$10,500	\$9,813

In the preceding example, Vendor #2 is clearly the low-cost choice — but what if Vendor #1 offers the computer system at a lower price, such as \$10,000? Who has made the best offer? By comparing the alternatives' present values, you should be able to quickly tell that Vendor #2 is still the best choice. The simple present value analysis would look like this:

	Vendor #1	Vendor #2
This Year	\$10,000	
Next Year		\$10,500
7% Discount Factor	1	.9346
Present Value	\$10,000	\$9,813

But what would happen if the discount rate were 4 percent instead of 7 percent? Would it change the result?

You can estimate quickly with an interest calculation. If you invest \$10,000 at 4 percent interest, it would be worth \$10,400 at the end of one year — less than Vendor #2's \$10,500 offer. In other words, \$10,000 today is the *present value* of \$10,400 one year from now, if the interest rate were 4 percent. In this situation, Vendor #1 has made the best offer.

(Topic continued on next page)

28.4 The Factors of Time and Interest in Present Value Discounting

(continued)

Effect of Discount
Rate on Present
Value
(continued)

Changing the discount rate from 7 percent to 4 percent changes the discount factor from .9346 to .9615. The present value analysis would look like this:

	Vendor #1	Vendor #2
This Year	\$10,000	
Next Year		\$10,500
4% Discount Factor	1	.9615
Present Value	\$10,000	\$10,096

So you can see that the discount rate is one of the key factors that affects the present value determination.

Deciding which
Discount Rate to
Use

You will probably not be involved in selecting a discount rate, but you should know how it is done.

OMB Circular A-94, Appendix C, sets the discount rates for use in present value analysis. OMB updates the appendix each year around February based on the President's Budget. Using the provisions of the circular, agencies select one of three categories of rates to use:

- 7 percent for public investments,
- Nominal interest rates, or
- Real interest rates.

This sounds more complicated than it is.

OMB policy in Circular A-94 indicates that a standard discount rate based on 7 percent is used where benefits accrue to the public. Since most government information systems deliver benefits of various types to the public, the 7 percent factor is most frequently used. [The standard discount rate used to be 10 percent. OMB changed it to 7 percent in 1992.]

(Topic continued on next page)

28.4 The Factors of Time and Interest in Present Value Discounting

(continued)

Deciding which
Discount Rate to
Use
(continued)

If the system does not provide money, information, or some other benefit to the public, agencies use a discount rate based on either nominal or real interest rates. What's the difference between a nominal rate and a real rate? Inflation.

Inflation is factored into *nominal interest rates*. Nominal interest rates are normally used in budgeting and procurement cost evaluation. If you think about it, it makes sense. You must account for inflation when you plan and budget for future year costs. Similarly, contractors bid system life costs into which they've factored inflation. In other words, vendors bid nominal prices which you would discount with nominal rates. Nominal rates are sometimes called current rates with the results expressed in current dollars.

Inflation is *not* factored into *real interest rates*. *Real interest rates are normally used in benefit-cost analysis when the 7 percent standard discount rate is not.* Why isn't inflation normally considered in benefit-cost analysis? As OMB indicates: "Future inflation is highly uncertain. Analysts should avoid having to make an assumption about the general rate of inflation whenever possible." Real interest rates are sometimes called constant rates with the results expressed in constant dollars.

So, normally you will use the standard rate of 7 percent or the real interest rate in present value discounting for benefit-cost analysis. You will probably use nominal interest rates in lease-purchase analysis and cost evaluation. OMB Circular A-94 does not dictate this, however.

As you've learned, time affects the value of money. Just as banks increase interest rates with longer-term certificates of deposit, OMB increases nominal and real interest rates based on longer terms. For example, the rates published in 1994 were:

Real Interest Rates: March 1994 - February 1995				
3 Year	5 Year	7 Year	10 Year	30 Year
2.1	2.3	2.5	2.7	2.8
Nominal Interest Rates: March 1993 - February 1994				
3 Year	5 Year	7 Year	10 Year	30 Year
5.0	5.3	5.5	5.7	5.8

(Topic continued on next page)

28.4 The Factors of Time and Interest in Present Value Discounting

(continued)

Deciding which
Discount Rate to
Use
(continued)

Unless agency policy dictates the use of a specific discount rate or you have other justifiable rationale, you should select a discount rate based on OMB Circular A-94, Appendix C. The discount rate selected from Appendix C should be for the same number of years as you are evaluating in your analysis. If your period of analysis does not match any of the discount rate periods in Appendix C, you can use straight line interpolation to establish a rate. For example, a straight line interpolation for a four year real discount rate would be 2.2 (midway between the three year rate of 2.1 and the five year rate of 2.3).

You can get assistance and rate update information from OMB's Office of Economic Policy at (202) 395-3391.

Calculating a
Discount Rate

You'll note from the preceding example that OMB publishes a table of interest rates, not discount factors. As we indicated earlier, one way to determine a discount factor is to use a discount table. Although these should be available from your finance office, it's easy to calculate an annual discount rate table.

OMB expresses the formula for calculating discount factors, using i as interest and t as time, as:

$$1 / (1 + i)^t$$

Again, this looks worse than it is. It means that:

- You add the interest rate and the number one,
- Repeat the result times itself for the number of the year that you want the factor [for example, (1.07) for the first year or (1.07*1.07) for the second year],
- Divide the result into 1.

All discount factors are less than one.

28.4 The Factors of Time and Interest in Present Value Discounting

(continued)

Calculating a
Discount Rate
(continued)

You can create a table for the 7 percent standard discount rate using a calculator or spreadsheet program. The results might look like this:

Year	Formula	Discount Rate
1	$1 / 1.07$.9346
2	$1 / (1.07*1.07)$.8734
3	$1 / (1.07*1.07*1.07)$.8163
4	$1 / (1.07*1.07*1.07*1.07)$.7629
5	$1 / (1.07*1.07*1.07*1.07*1.07)$.7130

The formula provides year-end discount rates. When costs and benefits occur in a steady stream throughout the year, mid-year discount factors are more appropriate. To convert year-end discount factors to mid-year discount factors, multiply the year-end rate by 1.0344. The results look like this:

Year	Mid-Year Rate	Year-End Rate
1	.9667	.9346
2	.9035	.8734
3	.8444	.8163
4	.7891	.7629
5	.7375	.7130

28.5 Analysis and Present Value Discounting

Importance of Present Value Discounting

You now know that time and discount rates can affect financial decisions. Present value discounting is the technique we use to *equalize the comparison of costs and benefits that occur unequally over time*. This concept is especially important to bid and proposal evaluation. Without present value discounting, offerors could “game the system” and the government might not select the most advantageous system life offer (considering the cost of money).

Present value discounting, sometimes referred to as present value analysis, is a technique used by government and industry in many types of analysis.

Requirements for Present Value Analysis

OMB Circular A-94

OMB Circular A-94 requires present value discounting in any analysis of a series of measurable benefits or costs extending for three or more years into the future. However, agencies should seriously consider using present value discounting for measurable costs and benefits occurring over more than one year when there are differences in the timing of payments among alternatives.

FIRMR 201-4.001

By definition, present value is an inherent part of the lowest overall cost determination. FIRMR 201-4.001 provides:

Lowest overall cost means the least expenditure of funds over the system life, price and other factors considered, including, but not necessarily limited to—

- (a) Prices for the FIP resources;
- (b) The present value adjustment, if used; and
- (c) The identifiable and quantifiable costs —
 - (1) Directly related to the acquisition and use of the FIP resources;
 - (2) Of conducting the contract action; and
 - (3) Of other administrative efforts directly related to the acquisition process.

FIRMR 201-39.1401

FIRMR 201-39.1401, which addresses general provisions for sealed bidding, requires contracting officers to consider options, acquisition methods, present value discount factors, and other price-related factors when selecting the most advantageous bid.

(Topic continued on next page)

28.5 Analysis and Present Value Discounting

Requirements for
Present Value
Analysis
(continued)

FIRMR 201-39.1402-1 and 201-39.1501-1

FIRMR 201-39.1402-1 and 201-39.1501-1 elaborate on this policy. When the timing of payments is expected to vary among the alternatives being considered, agencies must discount offered prices to present value and apply the results in determining the most advantageous offer to the Government. GSA has proposed adding the condition “or where payments will be made over an extended period” to these provisions. GSA’s proposed rule would also change a reference to OMB Circular A-94 (rather than A-104 as the FIRMR presently reads). You should check the current FIRMR provisions.

Examples of
Present Value
Analysis in
Acquisition

During a FIP resource acquisition, there are numerous situations when you might apply present value analysis. For example, you might discount:

- during market research, to determine differences in cost among available sources for an identical FIP product or service available under different terms and conditions;
- during planning or benefit-cost analysis, to project and compare life cycle costs for several competing FIP resource systems or solutions;
- as part of a lease-purchase analysis or a “make or buy” analysis, to compare the costs on an equalized basis;
- to analyze the effect in present value of cash flow, such as when one agency “rents” computer time to other agencies for reimbursement;
- during analysis of alternatives, to compare cost differences among available alternatives; and
- as part of a source selection process, especially under a “best value” acquisition strategy.

In short, you should be prepared to use present value analysis when you compare costs (especially across a period of three or more years) and when the financial terms and conditions (especially rates and time) from various offerors or sources are different.

28.6 Steps in Benefit-Cost Analysis

Overview of Benefit-Cost Analysis

Now that you know about discount rates and present value analysis, let's put it all together by covering the steps in a benefit-cost analysis (shown in the flowchart on page 28-9). Although you will probably not be part of the acquisition team developing the benefit-cost analysis, you may be required to review one or to contribute information. You should be familiar with what is involved.

Step 5a Identify Costs and Benefits

The first step is to identify the costs and benefits that will be measured for the current system (the status quo) and for the alternatives. Even if the status quo is not an acceptable alternative, your agency should know what the current system costs and the reasons it is unacceptable. These are fundamental management principles.

Your agency should identify both direct and indirect costs and benefits. Direct costs relate directly to the acquisition, such as equipment and software costs. Indirect costs are related costs, such as those associated with acquiring property and preparing it for use. Examples of direct benefits are reduced operational costs and reduced systems staff. Indirect benefits might include productivity improvements for professionals using the system information or improved reporting capabilities. However, the categorization as "direct" or "indirect" is unimportant.

Two things are important: to identify all measurable costs and benefits and to apply them properly. For example, costs to meet projected workload growth usually apply regardless of the solution. Although the amount of cost may vary among the status quo and alternatives, the cost element applies to all. However, if only one alternative requires certain costs, then such costs are measured only for the alternative to which they apply. For example, if one of the alternatives requires three Government employees full time for support, the costs of their wages and benefits, plus any travel costs, are included for the alternative to which they apply. This is essential to estimating as accurately as possible system life costs.

(Topic continued on next page)

28.6 Steps in Benefit-Cost Analysis *(continued)*

Step 5a Identify Costs and Benefits (continued)

Some guidance documents suggest that benefit-cost analyses should include estimates of *residual value*. The FAR describes residual value as “the proceeds, less removal and disposal costs, if any, realized upon disposition of a tangible capital asset.” However, as a matter of practicality, this is normally *not* done in the Federal government for information technology resources.

The following are examples of the types of costs and quantifiable (tangible) and nonquantifiable (intangible) benefits that may apply to an information technology procurement. You can probably think of more.

Examples of Costs	Examples of Benefits
Site and facility	Reduced or controlled costs
Equipment	Reduced staffing
Shipping and installation	Increased productivity
Software purchase and fees	Improved staffing utilization
System testing	Increased productivity
Conversion	Elimination of manual functions
Studies	Increased capacity
Database preparation	Reduced error rate
Personnel	Improved management information
Travel	Improved controls
Training	Automated interfaces
Overhead	Less data redundancy
Supplies	Faster retrieval
Utilities	Improved public assistance
Security	Improved access
Maintenance and support services	Improved security

28.6 Steps in Benefit-Cost Analysis *(continued)*

Step 5b
Establish the
Timing of Costs
and Benefits

The next step is to determine the timing of the costs and benefits for each alternative in the present value analysis. Costs and benefits occur at different times in the acquisition life cycle. For example, there may be some one time or “up front” costs (such as site preparation or conversion) that occur early in the acquisition life cycle and are not repeated. These are sometimes referred to as “nonrecurring costs.” On the other hand, there are recurring costs (such as system maintenance costs) that begin with installation and continue throughout the life cycle. Although costs are incurred throughout the systems life (including the planning and acquisition phase), benefits typically begin sometime after contract award.

Step 5c
Project Costs and
Benefits Over the
Systems Life

The next step is to establish values for costs and benefits over the system's life. These are called projected costs and benefits. (Projected costs and benefits that have been discounted to their present values are called discounted costs and benefits.)

Program, technical, and financial staff typically handle these tasks, although contracting staff may assist as part of the market research phase. The values for costs and benefits are normally developed without considering inflation. However, if firm future costs are available from contracts, commercial price lists, or budgets, use them.

Step 5d
Select the Discount
Rate

The next step is to select the discount rate to use in discounting projected costs and benefits to their present values. If your agency hasn't yet established the discount rate, you can determine the proper discount rate by consulting Appendix C of OMB Circular A-94. As you've learned, seven percent or real interest rates are normally used for benefit-cost analysis.

Step 5e
Discount to
Present Values

Once the values of costs and benefits are projected and the discount rate selected, the annual and system life costs for each alternative are discounted to their present value. Remember that the purpose of discounting is to equalize the comparison of varying streams of costs and benefits over time.

28.6 Steps in Benefit-Cost Analysis *(continued)*

Step 5f
Establish
Quantitative
Measures for
Comparison

Once costs and benefits have been projected and present values determined, three specific quantitative, comparative measures are normally developed.

They are:

- Net present value, sometimes referred to as net benefit or net cost;
- Benefit-cost ratio; and
- Breakeven point or payback.

Net present value subtracts the present value of costs from the present value of benefits. If benefits exceed costs, a net benefit results. If costs exceed benefits, a net cost results. The calculation looks like this:

$$\frac{\text{Present Value of Benefits} - \text{Present Value of Costs}}{\text{Net Present Value}}$$

The *benefit-cost ratio* is calculated by dividing the total present value benefits by the total present value costs. If benefits equal costs, the ratio is 1. If benefits exceed costs, the ratio is more than 1: the system will breakeven. If benefits are less than costs, the ratio is less than 1: the system will not breakeven. The calculation for the benefit-cost ratio looks like this:

$$\frac{\text{Present Value of Benefits}}{\text{Present Value of Costs}} = \text{Benefit-Cost Ratio}$$

There's an easy way to think of the benefit-cost ratio. If the benefit-cost ratio is 1.5, it means that for every \$1.00 invested, \$1.50 of benefits will accrue.

Breakeven or payback is the calculation of how many months it will take for cumulative benefits to equal cumulative costs. The system will only breakeven if projected benefits equal or exceed projected costs.

Undiscounted (projected) costs and benefits are used to determine the breakeven point.

(Topic continued on next page)

28.6 Steps in Benefit-Cost Analysis *(continued)*

Step 5f
Establish
Quantitative
Measures for
Comparison
(continued)

The table below shows how this information might appear in a summary table of a benefit-cost analysis.

COMPARISON OF ALTERNATIVES			
Description	Status Quo	Alternative 1	Alternative 2
Total Present Value Benefits	0	8,690,663	8,690,663
Less Total Present Value Costs	7,658,159	8,497,668	10,651,811
Net Benefit (Cost)	(7,658,159)	192,995	(1,961,148)
Benefit-Cost Ratio	0	1.02	.82
Breakeven (Months)	N/A	52	N/A

Let's take a closer look at this information.

This benefit-cost analysis considers the current system (the status quo) and two alternatives. The status quo is an outdated mainframe system that the agency plans to replace. If the agency were forced to retain the system, costs would exceed \$7 million over the systems life while delivering no benefits. This information is useful for establishing a baseline against which competing alternatives can be measured.

The alternatives both use distributed processing technology, one with a more powerful (and expensive) processor than the other. As a consequence, Alternative 2 costs more than Alternative 1. They both deliver the same benefits.

Only Alternative 1 delivers a net benefit. This means that only Alternative 1 claims benefits that are worth more than the system will cost, so it is the only system that will *breakeven* — cumulative benefits will exceed cumulative costs in 52 months. Alternative 1 also shows a *net benefit* of \$192,995 and a *benefit-cost ratio* of 1.02.

These quantitative measures establish powerful arguments for selecting Alternative 1.

28.6 Steps in Benefit-Cost Analysis *(continued)*

Step 6
Select the Most
Advantageous
Offer

As you learned in Chapters 26 and 27, the final step is to select the most advantageous alternative.

<p>Most advantageous alternative — the alternative that provides the greatest value to the Government over the system life, in terms of price, cost, quality, performance and any other relevant factors. (FIRMR 201-4.001)</p>
--

The most advantageous alternative means the alternative that offers the best mix of performance benefits and price. Keep in mind that the previous step addresses quantitative costs and quantitative benefits. But sometimes, an alternative has nonquantifiable or intangible benefits that can outweigh differences in costs. As you've learned, this final decision-making is similar to a best value determination.

28.7 Unique Terms Used in Benefit-Cost and Present Value Analysis

Definition of Unique Terms

You have learned throughout this chapter some of the terms that apply to benefit-cost and present value discounting. They are reviewed below. Be sure you understand and can use these terms correctly.

Benefit-Cost Analysis—a special type of analysis done to determine the relative benefits of a course of action compared to the relative costs. In a benefit-cost analysis, you compare projected and present value benefits against the projected and present value of the costs.

Benefit-Cost Ratio—a number derived by dividing an alternative's present value benefits by present value costs. Benefit-cost ratio is one of several measures used to compare alternatives in a benefit-cost analysis.

Breakeven—the point at which cumulative benefits equal cumulative costs. Breakeven points are based on projected (not discounted) benefits and costs. Breakeven is one of several measures used to compare alternatives in a benefit-cost analysis.

Cost Effectiveness Analysis—a special type of analysis done to compare the relative costs of several alternatives. A cost effectiveness analysis is a benefit-cost analysis without the benefits. It is used when the benefits are the same for all alternatives or when benefits can't be quantified (as in defense systems).

Discount Factor—a multiplier, varying by interest rate and time, used to discount future costs and benefits to their present values.

Discount Rate—the rate used to develop discount factors which convert future costs to their present value. Discount rates are based on what the United States Treasury pays to borrow money for periods from 91 days to 30 years. These rates are published in OMB Circular A-94 and are updated annually at the time of the President's budget submission to Congress. Rate updates are also available upon request from OMB's Office of Economic Policy at (202) 395-3391.

Discounting—the process of converting future dollars to their present values by multiplying future dollars times a discount factor.

(Topic continued on next page)

28.7 Unique Terms Used in Benefit-Cost and Present Value Analysis

Definition of
Unique Terms
(continued)

Net Present Value—the difference between the present value of benefits and the present value of costs; sometimes referred to as a net benefit when benefits exceed costs, or a net cost when costs exceed benefits. Net present value is one of several measures used to compare alternatives in a benefit-cost analysis.

Nominal Discount Rates—discount rates that *are adjusted* for the effect of actual or expected inflation or deflation. Nominal rates are normally used for budgeting, lease-purchase determinations, and cost evaluation. You will find these rates in Appendix C of OMB Circular A-94.

Present Value Analysis—an analysis performed to determine the present value of a future cost or benefit, expressed in today's dollars.

Present Value—the value of a cost or benefit expressed in today's dollars, regardless of the time of acquisition or realization.

Real Discount Rate—discount rates that are *not adjusted* for the effects of inflation or deflation. Real rates are normally used in benefit-cost analysis. You will also find these rates in Appendix C of OMB Circular A-94.

Residual Value—the proceeds, less removal and disposal costs, if any, realized upon disposition of a tangible capital asset. Residual value is normally *not* estimated for FIP resources.

SUMMARY

In this chapter, you learned about the purpose of benefit-cost and present value analysis. In the next chapter, you will learn about lease-purchase analysis.

CHAPTER 29

LEASE vs. PURCHASE OF FIP RESOURCES

Chapter Vignette

“I was wondering,” said Mark, “if present value discounting equalizes costs that occur unequally over time, do we need to discount during lease-purchase analysis?”

“We sure do,” said Marcia. “As you have learned, deciding which rate to use is an agency decision. Let’s talk more about present value discounting in lease-purchase analysis.”

Course Learning Objectives

At the end of this chapter, you will be able to:

Overall:

Describe the concept and purpose of lease-purchase analysis.

Individual:

- 29.1 Describe requirements for lease-purchase analysis.
- 29.2 Identify lease and purchase methods of acquisition.
- 29.3 Identify where to obtain pricing information.
- 29.4 Describe the steps involved in lease-purchase analysis.
- 29.5 Apply discounting methods and other price-related factors to determine lease vs. purchase decisions.

Chapter Overview

Scope

As you learned in Chapter 28, present value discounting equalizes the comparison of alternatives when costs differ over time. In this chapter, you will learn how to apply present value discounting during lease-purchase analysis.

You will also learn about the requirements for making these lease or buy decisions. This chapter explains important requirements in OMB Circular A-94 and the FAR. This chapter also describes lease and purchase methods of acquisition, identifies where to obtain pricing information, and lists the steps involved in lease-purchase analysis.

References

To understand fully the topics discussed in this chapter, you may need to refer to regulatory and policy documents:

- OMB Circular A-94, *Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs*, and
- FAR 7.105 and Subpart 7.4

In addition, if you are concerned with contractor-leased FIP resources, you should refer to FAR 31.205-2 and (for DoD employees) DFARS Subpart 239.73.

Topics in This Chapter

The major topics in this chapter are:

SECTION	TITLE	PAGE
29.1	Requirements for Lease-Purchase Analysis	29-4
29.2	Lease and Purchase Methods of Acquisition	29-10
29.3	Where to Obtain Pricing Information	29-15
29.4	Steps in Lease-Purchase Analysis	29-16
29.5	Contractor Leasing of ADPE	29-22

For Assistance

FAR 7.403 indicates that GSA will assist (on agency request) in lease or purchase decisions by providing information such as GSA Nonmandatory FIP Schedule contract pricing, technological developments, and industry or market trends. Contact the Office of Information Resources Management Policy (KMA), GSA, Washington, DC 20405 or call (202) 501-0202.

29.1 Requirements for Lease-Purchase Analysis

Primary Policies	Primary Federal policies related to lease-purchase analysis appear in an OMB Circular and in the FAR. Related provisions are in the FIRM.
OMB Circular A-94: What and When	<p>OMB's policies on lease-purchase analysis are in Circular A-94, <i>Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs</i>. As you learned in Chapter 28, the circular applies in general “to any analysis used to support Government decisions to initiate, renew, or expand programs or projects which would result in a series of measurable benefits or costs extending for three or more years into the future.” The circular includes a section on lease-purchase analysis, sometimes referred to as “lease versus purchase” or “lease or buy” analysis and decision making.</p> <p>OMB Circular A-94 describes the analysis and when it is to be utilized. Lease-purchase analysis is performed <i>after the benefit-cost analysis</i> and supports the decision to acquire a FIP resource. <i>Lease-purchase analysis determines the most economical way to finance the acquisition</i>. You should be aware that lease-purchase analysis may be conducted as a stand-alone study during a Requirement Analysis/Analysis of Alternatives and/or as a part of proposal evaluation.</p>

Remember: Do not confuse the lease versus purchase decision with the benefit-cost decision. You FIRST make the benefit-cost decision in order to determine WHETHER to acquire a FIP resource.

Once you HAVE decided to acquire the resource, THEN you make a lease versus purchase decision to decide whether to lease or purchase.

(continued on next page)

29.1 Requirements for Lease-Purchase Analysis *(continued)*

OMB Circular
A-94:
Applicability and
Conditions
Requiring Lease-
Purchase Analysis

OMB Circular A-94 also specifies when its policies apply and what conditions require completion of a lease-purchase analysis. These are summarized in the table below. *Keep in mind that this analysis can be part of proposal evaluation if you solicit other than purchase.*

Use Lease Versus Purchase Analysis...
<p>If . . .</p> <ul style="list-style-type: none">• You are acquiring a CAPITAL ASSET or a group of related assets• With a fair market value exceeding \$1 million . . . <p>And One or More of the Following Conditions Apply . . .</p> <ul style="list-style-type: none">• Would be leased for three or more years,• Is new, with an economic life of less than 3 years and would be leased for a term of 75% or more of its economic life,• Is built expressly for lease to the Federal government, <i>or</i>• Is leased to the Federal government and clearly has no alternative commercial use. <p>Then . . .</p> <ul style="list-style-type: none">• OMB Circular A-94 provisions on lease-purchase analysis apply, <i>and</i>• You must perform a lease versus buy analysis and make a lease or buy decision.

Capital assets include durable goods, equipment, buildings, facilities, installations, or land. Capital assets are goods, NOT services or supplies. FIP equipment and FIP facilities (systems and space) are capital assets.

For example, if you acquire a computer system or a private branch exchange (PBX) for telephone service in a Government building, you are acquiring capital assets.

(continued on next page)

29.1 Requirements for Lease-Purchase Analysis *(continued)*

OMB Circular
A-94: Justification
for Lease

Because OMB A-94 presumes that purchase is the most economical alternative, a justification is required when an agency leases. *All leases of capital assets covered by OMB Circular A-94 must be justified as preferable to direct government purchase and ownership.* OMB Circular A-94 cites three ways this can be done.

TYPES OF LEASE-PURCHASE JUSTIFICATION	
Justification	Used When:
Separate lease-purchase analysis	<ul style="list-style-type: none"> Acquisition is a separate line-item in the agency's budget, <i>or</i> The agency or OMB determine the buy is a "major acquisition," <i>or</i> The purchase price of the asset or group of assets will exceed \$500 million.
Periodic lease-purchase decisions	OMB approves generic decisions to apply on a recurring basis to a group of similar assets
Formal lease-purchase policy decision	<ul style="list-style-type: none"> Leasing will save substantial money, <i>and</i> Leases are so small or short-term that separate analyses are impractical, <i>and</i> Leases are scored consistent with instructions in OMB Circular A-11, <i>and</i> OMB approves the policy decision.

Although OMB Circular A-94 does not indicate, lease-purchase analysis is required in proposal evaluations for FIP equipment when the agency solicits (or does not restrict submission of) other than purchase. Keep in mind that availability of commercial financing options depends on market practices. The solicitation may identify purchase and other methods of acquisition (i.e., LTOP, LWOP, or lease). Offerors must merge commercial financing options available to them into one of the four methods of acquisition identified in the solicitation.

OMB Circular A-94 also provides detailed procedural guidance, such as the treatment of imputed (indirect) costs including taxes and insurance premiums. **This generally applies to acquisition of real property (i.e., buildings and land).** If you are involved in a lease-purchase analysis involving significant costs, you should contact your financial officer for assistance.

OMB's lease-purchase policy was previously published in OMB Circular A-104. Although that circular was rescinded in 1992, some regulations still refer to it. *So if you see OMB Circular A-104 cited, refer instead to its replacement circular, A-94.*

29.1 Requirements for Lease-Purchase Analysis *(continued)*

FAR: Lease or
Purchase Planning

FAR 7.105(b)(4)

FAR 7.105(b)(4) requires lease-purchase decisions to be addressed as part of the contracting considerations in written acquisition plans. For example, if you plan to evaluate lease-purchase as part of proposal evaluation, you should so state that intention in your acquisition plan.

FAR: Lease or
Purchase Policies

FAR Part 7.4

The Federal Acquisition Regulation sets forth equipment lease or purchase rules in Subpart 7.4. It provides rules on making decisions to lease or purchase that *apply both to the initial acquisition of equipment and the renewal or extension of existing equipment leases*.

The requirement to conduct a lease-purchase analysis as identified in the FAR is required for any method other than purchase prior to execution of an option. Before you exercise an option, you should compare the remaining life cycle costs of leasing the equipment under contract to the current market's purchase (and lease) prices.

FAR: Factors to
Consider

FAR 7.401

FAR 7.401 describes factors that you must consider in a lease or purchase decision. All lease-purchase analyses must consider:

- Estimated length of time the equipment will be used and the extent of use within that period,
- Financial and operating advantages of alternative types and makes of equipment,
- Cumulative rental payments for the estimated period of use,
- Net purchase price,
- Transportation and installation costs,
- Maintenance and other service costs, and
- Potential obsolescence of the equipment because of imminent technological improvements.

(Topic continued on next page)

29.1 Requirements for Lease-Purchase Analysis *(continued)*

FAR: Factors to Consider
(continued)

FAR 7.401

In addition, FAR 7.401 requires consideration of additional factors, *when appropriate*. They are:

- Availability of purchase options,
- Potential for use of the equipment by other agencies after its use by the acquiring agency has ended,
- Trade-in or salvage value,
- Imputed interest (applies to real property, not FIP), or
- Limited availability of a servicing capability for purchased equipment.

Because of the rate of advancement of technology and concurrent obsolescence of the installed base, residual or trade-in values are *not* normally calculated for FIP resources. However, regarding obsolescence, you should also be aware that the FAR provides that agencies “not rule out the purchase method of equipment acquisition in favor of leasing merely because of the possibility that future technological advances might make the selected equipment less desirable.”

FAR 7.402

Leasing may be appropriate as an interim measure or to meet short term needs. FAR 7.402 provides that if lease is justified, a lease with option to purchase is preferable. However, agencies must test this policy by comparing costs for straight lease and lease plans with ownership options based on foreseeable agency needs.

(continued on next page)

29.1 Requirements for Lease-Purchase Analysis *(continued)*

Related FIRMR Guidance

FIRMR 201-
39.5202-4(b)

Although the FIRMR does not address lease-purchase analysis *per se*, it does provide related guidelines.

For example, FIRMR 201-39.5202-4(b), *Evaluation of Options—FIP Resources*, indicates that before executing contract options, the Government will compare contract prices to “such factors as commercial or catalog prices for short-term leases.” (This refers to lease-purchase analyses performed by agencies at the end of each contract performance period to exercising contract options.)

FIRMR 201-39.1401
FIRMR 201-39.15

More significantly, FIRMR 201-39.1401, *Sealed Bidding*, requires contracting officers “to select the bid that is most advantageous to the Government considering options, acquisition methods, present value discount factors, and other price-related factors.” Even though this guidance is not repeated in FIRMR 201-39.15, *Contracting by Negotiation*, it is longstanding Federal policy to solicit all methods of acquisition unless there is a justifiable reason to eliminate a financing option from consideration.

Special Small Business Provisions

FAR 19.403(c)(2)

FAR 19.403(c)(2) authorizes the Small Business Administration’s breakout procurement center representatives to review limitations to competition resulting from agencies’ restrictions on acquisition methods. For example, a restrictive requirement might occur if the Government solicited or expressed a preference for a lease to ownership plan *and* one or more competitors are unable to finance the plan, limiting them to bidding purchase plans only and reducing their probability of award.

29.2 Lease and Purchase Methods of Acquisition

Introduction

At one time, the Government purchased most computers after they were built to one-of-a-kind specifications. This was normal in early days of computers when the Government was by far the largest (or only) customer. There were few or no computers available for lease.

Since those early years, technology has accelerated and the market has greatly diversified. Today, outright purchase is no longer the only, nor necessarily the best way, to acquire FIP resources. In fact, for some requirements, the Government's best interest may be served by leasing, rather than purchasing FIP resources.

Payment Plans

As a contracting professional, you should understand the various methods of acquiring FIP resources, whether by purchase or lease. GSA's standard solicitation document describes these methods of acquisition. Because these methods are simply different financing arrangements for FIP acquisition, *agencies must evaluate the effect of differences in financing on cost. We call this lease-purchase analysis.*

The two primary methods are *lease* and *purchase*. In purchases, title passes from the seller to the Government after installation and acceptance of equipment. In leases, the Government pays for the use of the resource but does not own it *until the conditions of the lease are met*. In some types of leases, title may or may not eventually pass to the government depending on the type of lease.

(Topic continued on next page)

29.2 Lease and Purchase Methods of Acquisition *(continued)*

Payment Plans (continued)

There are three primary types of leases: straight lease, lease with option to purchase, and lease to ownership plan. See the table below:

MOST COMMON LEASE PLANS	
Type	Description
Lease-to-ownership plan (LTOP)	Title passes to the Government after a predetermined number of lease payments. Normally agencies exercise yearly options with no obligation to continue the plan for the full term.
Lease with option to purchase (LWOP)	Agency accumulates credits while leasing which may be used to reduce purchase price. Purchase is normally restricted to predetermined times at which agencies may exercise their option to purchase.
Straight Lease	Contractor retains title throughout the system life. This is normally the most expensive method, used when there is a short-term need.

There are also hybrids of these plans. The Installment Purchase Plan (IPP) and Alternate Payment Plan (APP) are variations of LTOP. The difference is that the Government is sometimes granted “encumbered” title after installation and acceptance of equipment, with “clear” title passing after final payment based on the terms and condition of the GSA nonmandatory schedule(s). In addition, to obtain the schedule pricing, the contract specialist should be aware that the entire lease period must be covered by delivery orders regardless of the schedule period. Contractors sometimes offer a lower price in these plans since some of the risks and costs of ownership—like insurance and taxes—pass immediately upon installation and acceptance to Government. (Such costs must be considered in the lease-purchase analysis.)

In such cases, agencies need to be sure that obligations and responsibilities under the payment plan are clear. When assuming risk of loss or damage to equipment that the Government does not own outright, agencies should be sure that they have not also assumed a contingent liability in violation of the Anti-Deficiency Act. If a contractor proposes a payment plan in which title passes to your agency before payments are completed, be sure to consult your legal department.

Lease and purchase acquisition methods are described in more detail below.

29.2 Lease and Purchase Methods of Acquisition *(continued)*

Purchase

The primary method of acquisition is purchase. Outright purchase of a FIP resource is normally the lowest cost alternative when resources are needed for three years or more.

Purchase may be the only acquisition method proposed for lower cost equipment, such as printers or scanners. Purchase is also the likely solution in cases where there are unique government requirements. For example, the Government may require special security hardware (speech “scramblers”) or unique software not needed in commercial markets.

Keep in mind that the decision to purchase should not be automatic. You must consider leasing alternatives (if available) in your lease-purchase analysis.

Lease to Ownership Plans (LTOP)

The second major method of acquiring FIP resources is a *lease to ownership plan* (LTOP). In this type of payment plan, the government pays a set payment for a set term, obtaining title to the resource upon final payment. LTOP is typically used for expensive or customized FIP resources with limited market demand, such as supercomputers.

Current budget rules requires the Government’s use of LTOP to include all the following conditions:

- Payment is made in equal installments,
- The plan’s term is for a minimum of 13 months or more,
- The lease term must extend across fiscal years

When all of these conditions are met, payment can be made from agency operations and maintenance (O&M) funds.

A typical example is an expensive private branch exchange (PBX) installed by a vendor to provide telephone switching services for Government users over an extended time period. (The telecommunications company would have little incentive to remove the PBX equipment and lines for resale to another buyer.) In addition to purchase, telecommunications vendors offer a LTOP plan which allows the Government to spread the payment over a set period of time if the criteria stated above is met.

As with the other payment plans, the decision to accept an offer for a LTOP depends on a lease versus buy decision.

A LTOP plan is similar in many aspects to buying a car. Your agency pays a set number of payments after which title passes to the Government. Unlike buying a car, a piece of paper providing title to the FIP asset is not provided to the Government.

29.2 Lease and Purchase Methods of Acquisition *(continued)*

Lease With Option to Purchase (LWOP)

The *lease with option to purchase (LWOP)* is a variation of the straight lease method of acquisition. In LWOP plans, users accrue Purchase Option Credits (POC) during the lease term. If an agency opts to purchase the resource, these credits reduce the price. Based on the established contract, conversion to purchase could be only at set times during the lease period or any time during the lease. In conversion to purchase price, the contract specialist should be aware of the optimum time within the LWOP plan to convert to purchase. This optimum time will vary based on method of acquisition (open market vs. GSA nonmandatory FIP schedule) and vendor/OEM.

A vendor is usually willing to offer LWOP credits in long term leases, because all or nearly all the vendor's costs will be amortized (written off). In such cases, the vendor may have few customers and little incentive to take custody of an outdated FIP resource. The vendor can avoid disposal and handling costs by offering LWOP credits to the user.

You should realize that the vendor will rarely (if ever) offer the Government purchase option credits that accumulate to 100% of the purchase price. (That would be, in effect, an LTOP.) You will probably find that the amount of purchase option credits offered is closer to 30% of the total price.

Still, LWOP may be in the Government's best interest, especially if needs extend for longer than originally planned. Then an analysis may show that it is more cost effective to buy and continue using the resource for several more years, rather than acquiring an alternative resource at higher cost.

If an agency opts for LWOP or LTOP plans and later determines not to take title to the asset, the asset must be offered to other activities within the agency and then other agencies within the Federal government prior to returning assets to the contractor.

29.2 Lease and Purchase Methods of Acquisition *(continued)*

Straight Lease

The fourth method of acquisition is the *straight lease*. In a straight lease, the customer agrees to pay a specified amount of money at recurring intervals (normally monthly) for the use of a resource. When the customer no longer needs the resource, it reverts to the vendor.

Under straight lease, maintenance may be “bundled” in the lease price or it may be separately priced. The Government may not lease an item from one vendor and obtain maintenance from another. Both the lease price and maintenance costs must be evaluated to determine the total evaluated price. Under the present market conditions, a vendor remains fully responsible during the lease period for maintenance. If the resource fails, a vendor must replace failed items in a predetermined period of time, such as a day or two. The customer incurs no additional costs. The contractor is not liable for replacement if failure is due to negligence of the Government.

The terms of leases can vary greatly, from one day to a year or more. Generally, the longer the lease periods, the more favorable are the per-day lease rates. For example, the daily rate for a portable or notebook computer can be more than \$100 for a single day, dropping to just a few dollars per day if the customer signs a long term lease. This is because a long term lease allows the vendor to recoup investment costs and limit overhead costs, such as storage and inventory.

The straight lease method may be advantageous to the Government when there is:

- A short term requirement,
 - A national emergency requirement when immediate availability is more important than price, or
 - The Government has no interest in permanently acquiring the FIP resource.
-

(continued on next page)

29.3 Where to Obtain Pricing Information

Obtaining Pricing Information

To conduct a lease-purchase analysis, you must have current and accurate pricing information. This is easiest if you are conducting a lease-purchase analysis as part of a competitive solicitation's evaluation: prices are proposed by the offerors. If acquisition funding considerations require you to conduct a lease-purchase analysis before competition, you will need to obtain the information by other means. The same applies when you evaluate whether to renew a lease for a new option year.

Sources of Pricing Information

To obtain current pricing information, you may contact:

- *Original Equipment Manufacturers (OEMs)*. This pricing information is often available through "800" numbers.
- *Vendor marketing literature*. Many vendors, including large market outlets such as CompUSA, publish catalogs each quarter which contain updated price data. You can also obtain up-to-the-minute price data through vendors' "800" telephone numbers.
- *Other recent contracts for the same or similar items*. (When the term "recent" is used here, GSA's guidance is contracts which have been awarded within the last 3 months. This rationale is due to the ever changing prices in the marketplace.)
- *GSA non-mandatory contracts for the same or similar items*.
- *Sources sought notices in the Commerce Business Daily*.

You may want to review Chapter 16, *Market Research for Acquisition of FIP Resources*, for details on obtaining market information.

Updating Information

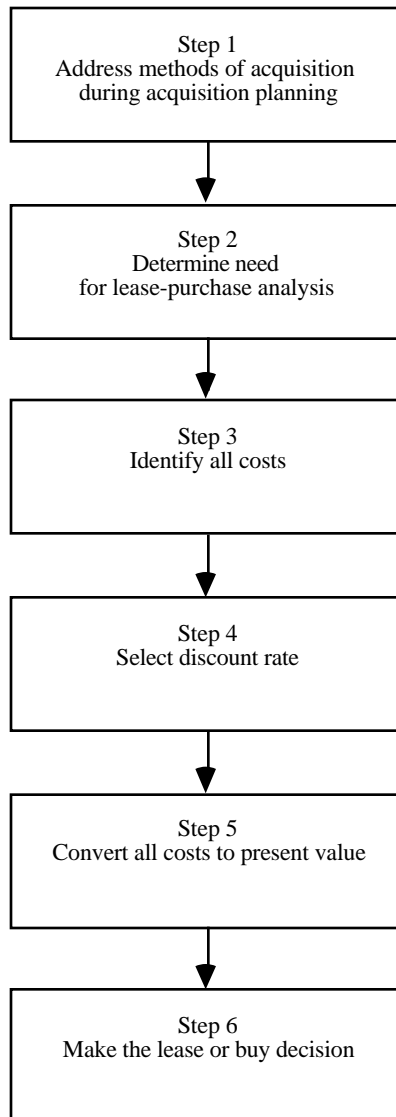
Sometimes you may have market research information that is over 3 months old. In such cases, you should check the accuracy and currency of market data, especially availability and prices, before you proceed with your lease versus buy analysis.

Our market is characterized by intense price competition for most FIP resource acquisitions, with many responsive and responsible offerors willing to compete aggressively on price. Because costs continue to fall while capability increases, conducting lease-purchase analyses regularly with current data is especially critical for FIP resources.

29.4 Steps in Lease-Purchase Analysis

Overview of Lease-Purchase Analysis

Now that you know about present value discounting and lease-purchase analysis, let's put it all together. The following flow chart shows the major steps that you should take to make a lease or buy decision. If the requiring agency or program office has performed this analysis, you should review it for accuracy, completeness, and conformance with Federal guidelines.



(continued on next page)

29.4 Steps in Lease-Purchase Analysis *(continued)*

Step 1: Address Methods of Acquisition during Acquisition Planning	<p>FAR 7.105(b)(4) requires agencies to address lease or purchase decisions as part of the contracting considerations in written acquisition plans. For example, you should determine if there are any reasons to limit your solicitation to certain payment plans—and, if so, justify the restriction. You should consider whether you will solicit or negotiate for other than purchase. Finally, you must include the evaluation of the lease-purchase as part of the proposal evaluation.</p>
Step 2: Determine Need for Lease-Purchase Analysis	<p>The next step is to determine whether you must, under the terms of OMB Circular A-94, perform a lease or buy analysis. You can use the decision table on page 29-5 to decide if OMB Circular A-94 applies. However, note that agencies may conduct a lease-purchase analysis during evaluation even though the terms of A-94 do not specifically require it.</p> <p>[Remember: You prepare the lease or buy analysis AFTER the benefit-cost analysis supports the need for a FIP resource.]</p>
Step 3: Identify All Costs	<p>To conduct a lease or buy analysis, your next step is to accurately identify all system life costs, including when they will be incurred.</p> <p>Be sure that you identify costs over the entire period that you are considering. If you omit costs, then you might make the wrong decision. Be especially watchful for costs that might be “hidden” or not readily apparent. For example, if purchasing would require recurring support by Government personnel (not required if equipment were leased), this cost must be documented and reflected in the lease versus buy analysis. Storage, shipment, and transportation costs are examples of costs that can be hidden or overlooked in a lease or buy analysis.</p> <p>If you are considering a three year life cycle, then you must compare the three year cost of leasing against the three year cost of purchasing and maintenance. (Maintenance fees are normally included in the lease rates, but not, of course, in purchase price.) A computer spreadsheet program with rows and columns can be very helpful. The table below is a <i>simplified</i> outline of three-year system life costs under three pricing options: purchase, LTOP, and straight lease.</p>

(continued on next page)

29.4 Steps in Lease-Purchase Analysis *(continued)*

Step 3: Identify
All Costs
(continued)

(Note that if transportation, installation, or other costs differ among the alternatives, you must include them in a lease-purchase analysis. In this example, note that cumulative totals are not included for the LTOP option since the government would be obligated for the full amount.)

SPREADSHEET TABLE 1					
	Day 1	Year 1	Year 2	Year 3	Total
Purchase					
Equipment	5,000,000				5,000,000
Maintenance		182,000	191,000	200,600	573,600
Totals	5,000,000	182,000	191,000	200,600	5,573,600
Cumulative Totals	5,000,000	5,182,000	5,373,000	5,573,600	
LTOP					
Lease*		2,200,000	2,200,000	2,200,000	6,600,000
Total				6,600,000	
Straight Lease					
Lease*		2,200,000	2,310,000	2,420,000	6,930,000
Cumulative Totals	0	2,200,000	4,510,000	6,930,000	
*includes maintenance					

In this case, we'll assume that the contracting officer based his prices on existing contracts or proposals. Note that the maintenance fees increase each year, accounting for the contractor's inflation projections. In the lease-to-ownership proposal, the contractor offered fixed, flat rates identical for each year. The contracting officer does *not* have to adjust these rates for inflation, because rates would be fixed under contract; risk of inflation is on the contractor, not the government.

(continued on next page)

29.4 Steps in Lease-Purchase Analysis *(continued)*

Step 4: Select the Discount Rate

The next step is to select a discount rate to use in discounting projected costs to their present values. If your agency hasn't established a discount rate, you can determine the proper discount rate by consulting the current version of the annually updated Appendix C of OMB Circular A-94. (See page 28-15 for 1994's real and nominal rates.)

As you learned in the last chapter, agencies select one of three categories of rates to use:

- 7 percent in *benefit-cost analyses* for public investments,
- Nominal interest rates, or
- Real interest rates.

You should recall that inflation is factored into *nominal interest rates*. Nominal interest rates are normally used in procurement cost evaluation, because contractors propose system life costs into which they've factored inflation. In other words, vendors propose nominal prices which you would discount with nominal rates.

Although OMB Circular A-94 does not so dictate, you will probably use nominal interest rates in lease-purchase analysis and cost evaluation. You can get assistance from your finance office or OMB's Office of Economic Policy at (202) 395-3391.

Step 5: Convert All Costs to Present Value

The next step is to convert all costs, for both lease and purchase alternatives, to their present values on an annual or monthly basis.

You now know that time and discount rates affect financial decisions. Remember that present value discounting is a technique we use to *equalize the comparison of costs that occur unequally over time*. This concept is especially important to lease-purchase and proposal evaluation. Without present value discounting, offerors could "game the system" and the government might not select the most advantageous system life offer (considering the cost of money).

(Topic continued on next page)

29.4 Steps in Lease-Purchase Analysis *(continued)*

Step 5: Convert
All Costs to
Present Value
(continued)

The table below adds present value discounting to the simplified outline shown in Step 3. In this table, 1994's three-year nominal discount rate (5%, adjusted to a mid-year rate to evaluate a consistent stream of costs) is used. In this case, the \$5,000,000 purchase price is not discounted because it represents the beginning (present value) on which the analysis is based.

SPREADSHEET TABLE 1					
	Day 1	Year 1	Year 2	Year 3	Total
Purchase					
Equipment	5,000,000				5,000,000
Maintenance		182,000	191,000	200,600	573,600
Totals	5,000,000	182,000	191,000	200,600	5,573,600
Present Value Factor	1	0.9851	0.9382	0.8936	
Present Value Total	5,000,000	179,296	179,296	179,247	5,573,839
Cumulative PV Totals	5,000,000	5,179,296	5,358,592	5,573,839	
LTOP					
Lease*		2,200,000	2,200,000	2,200,000	6,600,000
Present Value Factor	1	0.9851	0.9382	0.8936	
Present Value Total	0	2,068,800	1,970,286	1,876,463	5,915,549
Total				5,915,549	
Straight Lease					
Lease*		2,200,000	2,310,000	2,420,000	6,930,000
Present Value Factor	1	0.9851	0.9382	0.8936	
Present Value Total	0	2,167,314	2,167,314	2,162,400	6,497,028
Cumulative Totals	0	2,167,314	4,510,000	6,497,028	
*includes maintenance					

(continued on next page)

29.4 Steps in Lease-Purchase Analysis *(continued)*

Step 6: Make the
Lease or Buy
Decision

At this point, once you have calculated each option’s system life totals *discounted to their present values*, you are ready to make the lease or buy decision. An option that offers the lowest present value cost over the system’s life is the most advantageous alternative to the Government.

For example, in the table above, straight lease would be a better alternative than purchase if a system’s life of 1 or 2 years is assumed. Given a three-year system’s life, purchase is a better alternative.

However, type of money available for the acquisition is not to be a driver in selection of an acquisition methodology (purchase, LWOP, LTOP). This is dictated by the budget authority given to federal agencies by the Congress.

29.5 Contractor Leasing of ADPE

Guidance on Contractor Leasing Costs

FAR 31.205-2

There are special provisions pertaining to the allowability of leasing costs incurred by contractors and charged back to the government.

FAR 31.205-2 provides guidance on such costs.

When a contractor requests reimbursement for leasing “automatic data processing equipment” (as defined in FAR 31.001) in support of work on one or more Government contracts, the contractor must provide justification that leasing results in less overall cost to the Government. If a contractor cannot demonstrate that leasing is more advantageous, then the Government will normally pay only up to the amount that would be allowed had the contractor purchased the ADPE.

A contractor must obtain prior approval from the contracting officer to lease FIP resources when the total cost of leasing:

- is to be allocated across one or more negotiated Government contracts; or
- in a single cost center, exceeds \$500,000 per year, and 50 percent or more of the total leasing cost will be allocated to one or more negotiated Government contracts.

Documenting the Analysis

DFARS Subpart
239.73

The DFARS implement and expand on these requirements. DFARS Subpart 239.73 prescribes approval requirements for ADPE acquired under purchase or lease by contractors performing under DoD contracts.

Of particular interest in the context of this chapter are a provisions of DFARS 239.7304, which address a preference for negotiating for purchase option credits that are transferable to the Government. Also, DFARS 239.7305 requires use of a suggested format (or one “substantially similar”) for contractors to use when preparing a lease-purchase analysis. See the table below.

29.5 Contractor Leasing of ADPE *(continued)*

Documenting the
Analysis
(continued)

TABLE 39-1. SUGGESTED PURCHASE/LEASE ANALYSIS FORMAT								
ADP System								
As of								
Date								
1	2	3	4	5	6	7	8	9
ADPS Components	Qty.	Vendor	Other Avg. Monthly Rental/Lease (A) (B)	Instal. Date	Useful Life (C)	Orig. Purchase Price	Equity (D)	Current Purchase Price
(9-11 10-11)			(12+13)		(4×6)	(15-14)		
10 Vendors Purchase Price	11 Residual Value (E)	12 Owner Depreciation Costs	13 Other Costs (F)	14 Total Owner Costs	15 Total Rental/Lease Costs (G)	16 Differential (H)		
<p>(A) Includes projected extra shift where necessary.</p> <p>(B) Includes other costs (taxes, maintenance, insurance, etc.)</p> <p>(C) Documentation must be provided and attached per FAR 31.205-2.</p> <p>(D) Accrued equity on rented/leased equipment (accumulated rental credits).</p> <p>(E) Residual value forecast at end of useful life.</p> <p>(F) Includes taxes, maintenance, insurance, selling costs, lease cancellation costs, etc.</p> <p>(G) When considering annual justification for retention of existing ADPE capacity and the need to continue leasing, only the remaining rental costs to be paid under the lease should be shown.</p> <p>(H) If lease is favorable, bracket differential figures.</p>								

SUMMARY

In this chapter, you learned about the purpose of lease-purchase analysis. In the next chapter, you will learn about analyzing pricing methods to determine the lowest priced alternative.

CHAPTER 30

ANALYZING PRICING METHODS

Chapter Vignette

“I think that I understand the lease-purchase analysis,” said Mark, “but what if different offerors provide different methods or options. I imagine it can be difficult to sort out the relative price of each option, compared to all the other pricing methods. For example, what if you have many offers with different combinations of lease, LWOP, LTOP, and purchase?”

“You are right,” said Marcia, “it can be confusing. Fortunately, there are now automated commercial spreadsheet programs available to make the job much easier. You will find that most of the newer spreadsheet programs that you can use for this purpose are very user-friendly. Or, you can use the Bid Analysis Reporting System, or BARS, which was developed for this purpose some years ago. Whichever system you use, the key to success is in organizing the data that you will insert into the automated program and then correctly interpreting the outputs.”

Course Learning Objectives

At the end of this chapter, you will be able to:

Overall:

Analyze which price-related factors are likely to apply to a proposed requirement, based on the commercial spreadsheet or Bid Analysis Reporting System (BARS) calculations.

Individual:

- 30.1 Analyze and document each pricing method using a commercial spreadsheet or BARS to determine the lowest priced alternative.

Chapter Overview

Scope

This chapter will explain the use of commercial spreadsheets or the Bid Analysis Reporting System (BARS) in order to analyze appropriate price-related factors for determining the lowest priced alternative. This chapter presents data which requires you to calculate the lowest cost alternative in an acquisition. It is intended to:

- explain the use of either commercial spreadsheets or BARS to analyze price-related factors;
 - emphasize the importance of selecting all appropriate price-related factors for a given acquisition;
 - emphasize the importance of correctly interpreting outputs of an automated spreadsheet or BARS;
 - reinforce understanding of how present value determines purchase or lease decisions;
 - indicate whether it is necessary to perform a present value determination;
 - show whether purchase option credits will be made available;
 - show whether an acquisition fits any of the procedural or statutory exceptions;
 - show what is the lowest cost method; and
 - determine what is the most advantageous alternative, based on price-related factors.
-

Topics in This Chapter

This chapter includes the following topics:

SECTION	TITLE	PAGE
30.1	Analyzing the Price-Related Factors	30-5

Chapter Overview *(continued)*

References

In order to perform the actions discussed in this chapter, you may require access to the following references and materials:

- FAR 7.401, 15.605
- FIRMR 201-4.001, 201-39.1401, 201-39.1501-1, 201-39.1701-6, 201-20.203-2, 201-39.5202-4(b)
- DFARS 270.307
- Standard Solicitation Documents;
- the “BARS - PC Bid Analysis Reporting System Manual,” available from the General Services Administration, Information Resources Management Service, with the licensed diskette;

(Note: to be sure that you have the latest version of this diskette, contact the General Services Administration (GSA), Room 3227, 18th and F Streets, NW, Washington, DC 20405.)

- OMB Circular A-94, Guidelines and Discount Rates for Benefit-Cost Analyses of Federal Programs.
 - FIRMR Bulletin C-25.
-

30.1 Analyzing the Price-Related Factors

FIRMR Guidance on Analyzing Bids and Offers

FIRMR
201-39.1401
201-39.15
201-39.1701-6

You may recall the FIRMR advises that, before executing contract options, you should first compare contract prices to “such factors as commercial or catalog prices for short term leases.” Also, you may recall that FIRMR 201-39.1401 on sealed bidding requires contracting officers to “select the bid that is most advantageous to the Government considering options, acquisition methods, present value discount factors, and other price-related factors.” FIRMR 201-39.15 on contracting by negotiation does not provide such specific guidance on analyzing bids and offers, *but in practice most FIP resources acquisitions will require that you analyze the price-related factors to determine lowest overall cost.*

Also, FIRMR 201-39.1701-6, *Evaluation*, states that notwithstanding the language in FAR 17.206, “the contracting officer shall consider all options in the award evaluation.”

Exceptions

FIRMR 201-39.1501-2

There can be procedural and regulatory *exceptions* to the requirement for determining the lowest cost alternative. Procedurally, it may not be possible to quantify certain costs. For example, one offeror’s computer may have a great capacity for “expandability.” But, unless you can quantify or attach a dollar value to “expandability,” it is not possible to determine either the future costs or benefits of expandability. Unless you can attach a dollar amount to expandability, you cannot calculate the cost for that alternative.

There are also regulatory exceptions. FIRMR 201-39.1501-2, provides that agencies are permitted to award on the basis of the lowest offered ***purchase*** price “when:

- (a) The only acquisition method being solicited is purchase;
- (b) The purchase price of each item being acquired does not exceed \$25,000; and
- (c) The total purchase price of all the FIP resources to be included in the contract does not exceed \$300,000.”

Be careful about the \$25,000 limit. Pending changes to regulations may raise this amount to \$100,000.

There are also *exceptions in times of national emergencies and in war*. In such cases, the Government may justify purchase or straight lease without requiring consideration of other alternatives that may offer a lower overall cost.

(continued on next page)

30.1 Analyzing the Cost-Related Factors *(continued)*

Lowest Overall Cost

FIRMR 201-4.001

You may recall that FIRMR 201-4.001 explains *lowest overall cost* as follows:

Lowest overall cost means the least expenditure of funds over the system life, price and other factors considered, including, but not limited to—

- (a) Prices for the FIP resources;
- (b) The present value adjustment, if used; and
- (c) The identifiable and quantifiable costs—
 - (1) Directly related to the acquisition and use of the FIP resources;
 - (2) Of conducting the contract action; and
 - (3) Of other administrative efforts directly related to the acquisition process.

The lowest cost alternative is not necessarily the best overall value nor the most advantageous alternative to the Government. However, even if you are using a “best value” acquisition strategy, you must still determine the lowest overall cost alternative.

In order to find the lowest cost alternative, you can perform the necessary calculations and analysis manually, but it is faster and easier to perform them using a commercial spreadsheet program or the Bid Analysis Reporting System (BARS). Be aware that BARS is the standard for commercial spreadsheet programs. Commercial spreadsheets used should produce the same results!

When comparing cost-related factors of offerors who propose different options, especially on large FIP resources acquisitions, you may choose to extract cost data from the proposals and analyze the cost alternatives using a commercial spreadsheet.

What is BARS?

FIRMR Bulletin C-25

In 1981, GSA introduced the Bid Analysis and Reporting System (BARS). According to FIRMR Bulletin C-25, *BARS is an automated system designed to let you perform the present value analysis necessary to evaluate vendor proposals when contracting for FIP resources*. BARS can be used to perform several types of analyses, not just those for FIP resources acquisitions.

(continued on next page)

30.1 Analyzing the Price-Related Factors *(continued)*

Why Use BARS?

On any given FIP resources acquisition, it is possible that offerors may present several different alternatives for paying for FIP resources. This can easily happen because financing techniques may allow for payments to be made at different times and in different amounts. In some cases, there may be several alternatives and it could be difficult for you to perform present value analysis manually and to determine which alternatives would be more advantageous to the Government. In recent years, automated commercial spreadsheet programs have become very user-friendly and you can set up one of these to perform the same types of calculations done by BARS.

For example, on a single FIP resources acquisition, you might have to select the lowest overall cost from among the following alternatives:

- purchase;
- lease to purchase (LTOP);
- lease with option to purchase (LWOP);
- lease.

Commercial Spreadsheet or BARS?

It is not essential that you use BARS. BARS is designed to perform complex system life analyses, applying present value to costs, and calculating costs over a period of time to determine the lowest overall cost and most advantageous financial terms for the Government. You can now set up a spreadsheet to do the same type of calculations.

Hardware Required

You can run BARS on nearly any IBM-compatible PC with an MS-DOS operating system with a minimum of 640 K of RAM and a 3-1/2" or 5-1/4" floppy diskette drive. Check the user's manual for the hardware requirements for any commercial spreadsheet program.

Precautions

Whether you use an automated commercial spreadsheet, BARS, or manual calculations, there are two precautions that you must understand before you start:

1. You must select and analyze ALL appropriate price-related factors for the given acquisition, and
2. You must interpret the outputs of the calculations correctly.

(continued on next page)

30.1 Analyzing the Price-Related Factors *(continued)*

Select All Appropriate Price- Related Factors

Before you get started on using an automated commercial spreadsheet or BARS to analyze acquisition alternatives, make sure that you have identified and have all the price data for each alternative provided by each offeror. *Any computer analysis is only valid if you compare the full prices for all the various alternatives, under the same conditions.*

At this point in the acquisition process, price-related factors have already been identified in the acquisition plan (See Chapter 36, Price-Related Factors for FIP Resources). Also, you should have already completed any benefit-cost and present value analyses that were necessary. Be careful not to leave out a critical price-related factor. For example: (1) if you are acquiring hardware for installation in different locations, the installation in some sites may require additional transportation, site preparation costs that could have been overlooked; (2) additionally, one factor often overlooked when analyzing price-related factors is related supplies.

Comparing Prices

Be sure that you are comparing “apples against apples.” The computer or spreadsheet program cannot tell you if a price-related factor is appropriate for consideration. That requires your judgment.

(continued on next page)

30.1 Analyzing the Price-Related Factors *(continued)*

Using Present
Value

FIRMR 201-20.203-2

FIRMR 201-20, *Cost for each alternative*, requires that agencies calculate the total estimated cost for each feasible alternative, unless the anticipated cost of the acquisition is \$50,000 or less. However, as you have already learned, OMB policies supersedes the FIRMR and it is customary to do an analysis for all price-related alternatives, regardless of cost. As you have learned, this should be done in terms of constant, present value dollars, especially when you are analyzing prices for a multiple year acquisition, such as FIP maintenance services, or for lease with option to purchase, such as for a telecommunications private branch exchange (PBX).

(continued on next page)

30.1 Analyzing the Price-Related Factors *(continued)*

Organize the Data for Input in Present Value Terms

In order to minimize the risk of misunderstanding price-related factors or of omitting data, it helps to organize the data in a matrix before you begin to input the price-related data into the computer. Offerors should provide price data in accordance with the Price Schedule and pricing questionnaire from BARS or its equivalent. Both of these documents are to be incorporated into your solicitation with appropriate instructions to the offerors. Note: These are found usually in Section B of the solicitation. For example, if you are considering “maintenance” as a contract line item for one alternative, you must include it for all alternatives to which it applies. Make certain that you have not left out any contract line item numbers for any of the alternatives. Remember, the computer cannot make up for any data that you have failed to include.

If you use an automated commercial spreadsheet program, the matrix format is automatically displayed for you on the monitor screen and you simply have to “plug in” the data in the appropriate rows and columns. The following is a simple example of such a hypothetical data matrix organized for just one line item, in this case, FIP maintenance, with one base year and three option years, and the offerors proposed a five percent inflation rate. The quoted prices are extracted from the offerors' price offers.

Alternatives	Base Year	Option Year 1	Option Year 2	Option Year 3	Total Price
Alternative A	\$500,000	\$525,000	\$551, 250	\$578,813	\$2,155,063
Alternative B	\$495,000	\$519,750	\$545,736	\$574,022	\$2,134,508
Alternative C	\$490,000	\$514,500	\$540,225	\$567,236	\$2,111,961
Alternative D	\$485,000	\$509,250	\$534,713	\$561,449	\$2,090,412
Alternative E	\$480,000	\$504,000	\$529,200	\$555,660	\$2,068,860

In this simple hypothetical case, you can see that the lowest cost for maintenance appears to be offered by Offeror E, considering all prices offered. However, for a present value analysis, you would still have to first convert these prices to present value dollars.

(continued on next page)

30.1 Analyzing the Price-Related Factors *(continued)*

Organizing Data for BARS

If you use BARS, remember that it is a bit dated and not as user-friendly as the latest commercial programs. BARS requires that you first prepare the data manually on the appropriate data input sheets. BARS provides for 11 different data input sheets (GSA Forms T-825 through T-835).

Each of the 11 BARS data input pages is for a different type of data. For example, the first page is for general information needed to guide the analysis, such as the financing plans offered, evaluation period, escalation and residual value. The second page of BARS is for the information to guide the printout of the information about the Lease With Option to Purchase plan. The next group of pages are for the unit price information. The categories of unit prices in BARS are:

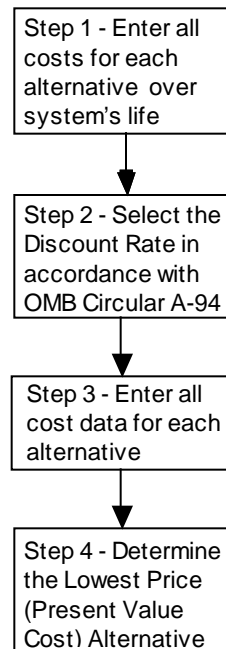
- non-recurring (regular and other);
- Purchase (recurring - regular and other);
- Maintenance;
- Environmental;
- Lease; and
- Lease to Ownership (LTOP)

The last two pages of input sheets for BARS are for purchase option credits (POCs). These describe how to determine a buyout price from the purchase price and the monthly lease rate. If you choose to use BARS, refer to the BARS manual for examples of the input sheets and instructions on completing them.

30.1 Analyzing the Price-Related Factors *(continued)*

Systematic Data Entry

Use the following steps to enter the price schedule data for each of the four acquisition alternatives. In order to avoid confusion, it helps if you do the data entry and analysis in a systematic manner either for each offeror or for each alternative. In the following examples, we have chosen to enter the data for each alternative.



Note: This process of analyzing price alternatives is the same as the process for proposal evaluation when other than purchase is solicited.

SUMMARY

In this chapter, you learned proposal evaluation using the Bid Analysis Reporting System or a commercial spreadsheet. In the next chapter, you will learn about funding for FIP resources.

CHAPTER 31

FUNDING FOR FIP RESOURCES

Chapter Vignette

“So far, except for some budgeting and funding information, we haven’t talked much about the details of financing for a FIP acquisition. How is a FIP acquisition different from any other acquisition when it comes to financing?”, asked Mark.

“Good question,” replied Marcia. There are some differences. Depending on the requirements, and results of the analysis of alternatives, there may be several ways to finance a FIP acquisition. The key is to determine the financing strategy that will be most favorable to the Government and complies with the intent of the funding sources. Certainly, you should consider the Information Technology Fund.”

Course Learning Objectives

At the end of this chapter, you will be able to:

Overall:

Choose the proper funding rule for different types of FIP resources.

Individual:

- 31.1 Identify and explain how the funding rules apply to different types of FIP resources.
- 31.2 Identify how the different types of lease and purchase methods are funded.
- 31.3 Identify the role of the Information Technology Fund.
- 31.4 Identify when multiyear contracts are in the best interest of the Government.

Chapter Overview

Scope

This chapter presents information on choosing the proper financing method for a FIP resource acquisition, including:

- how funding rules apply to different types of FIP resources;
 - how different types of lease and purchase methods are funded;
 - the role of the Information Technology Fund; and
 - the ability of agencies to award multiyear contracts under DPAs for telecommunications and how to determine when multiyear contracts are in the best interest of the Government.
-

Topics in This Chapter

This chapter includes the following topics:

SECTION	TITLE	PAGE
31.1	How Funding Rules Apply to Different Types of FIP Resources	31-4
31.2	How Lease and Purchase Methods Are Funded	31-11
31.3	The Role of the Information Technology Fund	31-16
31.4	When Multiyear Contracts Are in the Best Interest of the Government	31-17

References

In order to understand the topics in this chapter, you may require access to the following references:

- FIRMR 201-18.001, 201-18.002, 201-20.306, 201-24.102
 - DFARS 237.102, 237.106, 239.73, 239.75
 - FIRMR Bulletins C-5, C-15, C-18, C-21
-

31.1 How Funding Rules Apply to Different Types of FIP Resources

Introduction

This section discusses how the funding rules apply to different types of FIP resources. Regardless of the type of FIP resource to be acquired, the funding must be supported by :

- choosing the proper period of availability;
- the proper rate of obligation; and
- proper authorization.

At this point in the presolicitation process, the technical requirements have been established; the technical specifications and essential delivery dates have been established; the requirements analysis has been completed; the analysis of alternatives has selected the most advantageous technical and acquisition options for the Government and benefit-cost analyses and present value analyses have been completed.

At this point, you are nearly ready to complete the acquisition strategy and the acquisition plan. One of your responsibilities as a contract specialist may be to review a proposed FIP resource acquisition and recommend the options for funding that acquisition. The method of funding you use will depend on the type of requirement.

Financed versus Unfinanced Requirements

You may recall from Chapter 20 (Planning and Budgeting for FIP Resources) that, regardless of the type of FIP acquisition, requirements must be approved at each level before they are forwarded to Congress for approval and funding. In other words, the requirements must be clearly explained and precede the funding.

Congress will review each requirement which it receives and determine if the requirement will be:

- “*Financed*” - in which case funds will be set aside in the budget to support that acquisition, or
 - “*Unfinanced*” - funds will NOT be set aside in the budget, regardless of the technical merits of the requirement.
-

31.1 How Funding Rules Apply to Different Types of FIP Resources

(continued)

Approved &
Funded vs.
Approved &
Unfunded

You will also recall that even if Congress approves of a requirement, it may not choose to provide the funds for that requirement, so a planned acquisition can be “approved and funded” or “approved and unfunded.” *As far as you are concerned, you may not proceed with a FIP resources acquisition unless a requirement is both “approved” and “funded.”*

However, even if a requirement is approved and funded, the money may be placed in any one of several different funds, and it may be your responsibility as a contract specialist to find out which fund is appropriate for a given acquisition.

General Types of
Funds Provided

There are several general types of funds which might be used to finance a given FIP resource acquisition. These various funds are intended and appropriated by Congress to be used for different purposes and include:

1. Procurement funds
 2. Operation and Maintenance (O&M) funds
 3. Research and Development (R&D) funds
 4. Stock fund
 5. Revolving funds
 6. Non-appropriated funds
-

Procurement
Funds

The first type of fund which you may be able to use for a FIP acquisition is procurement funds. These are funds which are intended by Congress to be used for approved requirements on a one-time, non-recurring basis. This type of funding is provided *specifically for a certain acquisition*. Procurement funds are usually appropriate for a large scale, nonrecurring, FIP resource acquisition that is essential for the agency’s mission.

For example, an agency might require acquisition of a large LAN with dozens of workstations to open a new office. In this case, one-time procurement funding would be appropriate to obtain the LAN, including all components. Thereafter, as LAN parts and components wear out or require replacement, procurement funding might **not** be appropriate. Instead the O&M fund or other fund sources might be used.

However, after several years, when it is time again to replace the entire LAN, procurement funding might again be used.

(continued on next page)

31.1 How Funding Rules Apply to Different Types of FIP Resources

(continued)

Operation and Maintenance Funds

The second type of funding which you may be able to use for FIP resource acquisition is operation and maintenance (O&M) funding. Congress intends that O&M funds are more appropriate to cover the normal, recurring, mission-related operations of an agency or program office, including FIP services and FIP support services, such as daily operation and maintenance.

In order to use O&M funds, agencies are expected to forecast their monthly, quarterly, and year-to-year FIP resource requirements with a high degree of accuracy. For example, if an agency expects to lease 1,000 hours of contractor FIP services or requires 1,000 labor-hours of contractor maintenance support each year, these requirements should be met by the O&M budget.

As a contract specialist, you should be alert to the inappropriate use of O&M funds to acquire FIP systems. For example, it is usually not appropriate to use O&M funds to acquire a large LAN system in a piecemeal manner, buying a few computers at a time, and linking them together.

Research and Development Funds

A third type of funding which may be available for FIP resource acquisition is research and development (R&D) funding. This type of funding may be appropriate in those cases where the planned acquisition will clearly require specialized FIP resources which are not generally available from market sources, or will be required to support an authorized research and development project.

Certain Government requirements, such as advanced weather forecasting, atomic energy research and advanced aircraft design may be so specialized that there are simply no items available on the market to satisfy the requirements. In such cases, the only alternative may be to develop a one-of-a-kind FIP resource to Government specifications.

DFARS 232.702, 232.703-1

For DoD projects, DFARS 232.702 requires that fixed price contracts be fully funded, except for those exceptions allowed by DFARS 232.703-1, which allows incremental funding for fixed price contracts paid for with research and development appropriations.

As a contract specialist, your responsibility might be to determine whether allocated research and development funding is appropriate for a given acquisition.

31.1 How Funding Rules Apply to Different Types of FIP Resources

(continued)

Stock Funds

Stock funds are another type of fund which may be appropriate for a given FIP resource acquisition. The concept behind a stock fund is that the Government appropriates funding for purchase of a stock, or selected quantity of items. These items are often made to certain Government specifications and then stored (usually in Government warehouses or depots) and may be acquired only by an authorized requester to meet special agency requirements. Stock funded items are often not available as commercial off-the-shelf items and may be made in limited quantities. Stock-funded items are sometimes expensive and/or restricted to certain authorized uses. For example, certain communications security (COMSEC) devices which “scramble” voice telephone transmissions are an example of a stock-funded item for acquisition by military organizations authorized to use them.

As a contract specialist, you may be concerned about making sure that a requirement for acquisition of a stock-funded item is *authorized*. Not everyone is authorized to acquire certain stock-funded items and there is usually a limit on the number of items which even an authorized user may acquire. The key here is checking the authorization and stock funding authority to acquire a stock-funded item.

Revolving Funds

A *revolving fund* is a special category of fund which may be used for certain FIP resources acquisitions. As you may already know, a revolving fund is a “self-replenishing” or “self-supporting” fund. The intent of Congress is that the users of the fund’s assets will replenish the fund, with the money they pay for the acquired items. This allows other users to draw on those assets and keep the fund at a certain level so that use can continue indefinitely. Therefore, when Congress approves such a fund, it should be necessary to appropriate money to “fill” the fund only once. Thereafter, the fund will continue to operate with no additional appropriations from Congress.

The *Information Technology Fund* (ITF) operated by GSA is an example of a revolving fund.

Defense Business Operating Fund

The Defense Business Operating Fund (DBOF) is a revolving fund which can be used by authorized defense agencies to acquire FIP resources. Basically, the DBOF consolidated several of the separate stock funds and industrial funds operated by the various services into one consolidated revolving fund under the office of the Comptroller in the Department of Defense.

(continued on next page)

31.1 How Funding Rules Apply to Different Types of FIP Resources

(continued)

Non-Appropriated Funds

Most of the funds that you will use for acquisition of FIP resources are appropriated on a recurring basis by Congress. For example, operation and maintenance funds must be appropriated for each agency each year. However, some funds are said to be “*non-appropriated*.” Non-appropriated funds are a category of funds which are NOT appropriated on a recurring basis. In this respect, they are similar to a revolving fund in that they are expected to be self-supporting and self-replenishing, once they have been established.

Non-appropriated funds operate under established regulations which specify authorized and unauthorized purchases. For example, some non-appropriated funds in DoD are established for troop morale and welfare, such as for bowling alleys, clubs, hobby shops, and similar activities. In some cases, it is possible to use these non-appropriated funds to acquire FIP resources, so long as the FIP resource will be funded solely by, and used solely for, the support of the non-appropriated fund activities. An example might be a computer to maintain record keeping of the fund activities.

If an agency expects to use non-appropriated funding to support a FIP resource acquisition, your responsibility will be to ensure that the planned expenditure is authorized by the regulations which govern the particular appropriated fund.

Unique Funding Requirements That Apply to FIP

Acquisition of FIP resources includes some unique funding considerations. For example, FIP resources acquisitions are funded from a variety of available sources, such as the *Information Technology Fund*.

However, as a contract specialist, you should be aware that the selection of the proper source of funding will depend on the type and details of the FIP resource acquisition.

Even if funding is available for the planned acquisition, you must also make sure that the funding is appropriate and that certain conditions apply. These conditions include the:

- rate of availability; and
 - rate of obligation
-

31.1 How Funding Rules Apply to Different Types of FIP Resources

(continued)

Choosing the Proper Rate of Availability

One of your responsibilities may be to choose the proper *rate of availability* for funding. Not all fund sources are equally available throughout the year. For example, late in the year, some operating and maintenance funds may be nearly depleted, so it would not be legal for you to use these funds for a FIP resources acquisition without overspending. This would be a violation of the Anti-Deficiency Act.

Therefore, even if a requirement has been approved and funded, you must make sure that funding will still be available in the appropriate time period to support the acquisition. This may be especially true of acquisitions which are to be supported by operating and maintenance funds, such as maintenance services or equipment leases late in the fiscal year.

Also, remember that you cannot legally commit or obligate funds in advance just because you “expect the funding to be approved.” For example, suppose a program office wanted to “prevent interruption of FIP maintenance services until next year’s budget allocation is received,” you should still not obligate non-existent O&M funds for that purpose, even if you fully expected funding would become available.

FIP Support Service Contracts

FIP support service contracts are often used for the maintenance of computers and associated hardware. However, you must be certain that the funding and type of contract are appropriate for such requirements.

For example, it may be appropriate to finance the first year of maintenance as part of an acquisition of new FIP equipment. However, after FIP equipment has been installed beyond the first year, you should normally rely on operating and maintenance funds for the acquisition of FIP support services on the installed FIP equipment. Operating and maintenance funds are intended for service contracts and are funded by annual appropriations.

DFARS 237.102, & 237.106

Also, whenever possible, you should acquire such FIP service contracts on the basis of the *tasks to be performed, rather than the basis of the number of hours to be provided*. Therefore, whenever possible, you should avoid time and materials (T & M) contracts for FIP support services.

31.1 How Funding Rules Apply to Different Types of FIP Resources

(continued)

Choosing the Rate of Obligation

You must also check the *rate of obligation*, because the rate at which available funds will be obligated may also be a concern. Again, you are not authorized to spend funds which you do not have. One way that this can happen is if authorized funds are obligated at a rate faster than planned. This can lead to over-obligating funds in a certain time period, such as the last quarter of the fiscal year.

For example, suppose an agency has a T&M contract for FIP support services. Let us say the agency planned to expend \$100,000 per month, but finds that, in the last quarter, it is spending \$150,000 per month. In this case, the rate of obligation is clearly higher than expected and the available, authorized funding may be used up too soon or the authorized level will be exceeded.

For this reason you must choose a rate of obligation that will not use up the available funding too soon.

Acquisition of ADPE by DoD Contractors

One unique requirement concerns the acquisition of automatic data processing equipment (ADPE or FIP equipment) by DoD contractors, whether leased or purchased. In some cases, DoD contractors must acquire FIP equipment in order to perform tasks on one or more DoD contracts. The contractor may charge the full cost of the FIP equipment to the Government and the title to the equipment will pass to the Government upon completion of work.

A DoD contractor may also enter into a lease with option to purchase (LWOP) agreement. In this case, you can require that the rental contract be structured to allow purchase option credits to accrue to the Government.

DFARS 239.73

In all cases where a DoD contractor is required to lease or purchase FIP equipment (hardware), you should check DFARS 239.73. It prescribes approval requirements and procedures you should follow, and the documentation you will require. It includes a requirement that such requests for acquisition of FIP equipment be screened by the Defense Automation Resources Information Center (DARIC).

31.2 How Lease and Purchase Methods Are Funded

Types of Leasing and Purchasing

You may recall that in most acquisitions, you must make a lease or purchase decision. (See Chapter 29 for information on lease versus purchase for FIP resources.) That is, based on the available alternatives, you can opt to acquire a FIP resource either through purchase, or lease or both.

This section discusses the funding for each of the various lease or purchase options. You will recall that there are four basic methods to acquire FIP resources:

1. Purchase;
2. Lease With Option to Purchase (LWOP);
3. Lease to Ownership Plan (LTOP); and
4. Straight Lease.

Depending on the conditions of the acquisition, different types of funding may be used for these methods.

Funding for Straight Leasing

Straight leasing is often done on a short term basis, usually less than a year, and sometimes on an emergency basis. Typically, straight leasing is used for relatively low cost acquisitions of FIP resources. For these reasons, *straight leasing is usually paid for by the agency's operations and maintenance fund*. It is usually possible for the agency or program office to forecast sufficient O&M funding to cover any straight leasing requirements which may arise.

Funding for Contractor Leasing

However, in those cases where a contractor intends to lease FIP resources, O&M funding may not be appropriate. Instead, the cost of the contract, including contractor leasing, should usually be part of approved procurement funding.

Funding for LWOP

A second basic method of acquisition is Lease With Option to Purchase (LWOP). This method is sometimes used for relatively long term acquisitions, often more than one year, or when an agency can identify a long term requirement, such as several years. In such cases, it may be appropriate to *plan on using O&M funding* if the lease period will exceed more than one year, and if the accrual of credits toward purchase makes the purchase advantageous. Of course, the decision will depend on your lease versus purchase analysis.

31.2 How Lease and Purchase Methods Are Funded *(continued)*

Funding for LTOP The third basic method of acquisition is the Lease to Ownership Plan or LTOP. The LTOP requires that the lease payment meet several conditions:

- Lease payments must be made in equal installments;
- For a MINIMUM period of 13 months; AND
- Extend across fiscal years.

FIRMR Bulletin C-21 Under these conditions, the acquisition is drawn out over time and the costs are very predictable so *LTOP is usually paid out of the agency's O&M funding*. The GSA has made LTOP available for acquisition of relatively expensive telecommunications equipment, such as a private branch exchange (PBX). For additional information, see FIRMR Bulletin C-21.

Funding for Purchases Funding for purchases is available from several sources, depending on certain conditions including costs and agency rules. *The funding for most FIP resources, especially hardware, results from the planning and budgeting that agencies do as required by FIRMR 201-18.001 and OMB Circular A-130.*

FIRMR 201-18.001 This budgeting and planning establishes the long term justification for procurement funding that agencies need to meet requirements for FIP acquisitions each year. So, most of the time that you are looking for justification for a FIP resource acquisition, you should find that justification in the updated five year plan, and the money for this year's acquisitions should be in the current year budget.

DFARS 239.75 Although some DoD FIP resources can be acquired from O&M funding, so-called *Major Information Systems* require special oversight reviews and must be specifically funded within DoD (DFARS 239.75).

For example, under the Defense Appropriations Act, special oversight reviews must be completed for any major information system which:

- has anticipated program costs in excess of \$100 million; or
 - has estimated program costs of more than \$25 million in any single year; or
 - is designated as being of special interest by the Office of the Secretary of Defense.
-

(continued on next page)

31.2 How Lease and Purchase Methods Are Funded *(continued)*

Funds Not the “Driver” for Acquisition

One common misconception concerning financing of FIP resources is the continuing belief that funds are the key factor or “driver” in determining which FIP resources are to be procured. In fact, as explained by congressional reports, *the requirement, NOT funding, is the “driver” in FIP resources acquisition.*

In other words, even if funding, such as O&M funding, is known to be available and sufficient, you should not obligate or spend the funds unless the requirement has been approved and all alternatives considered. It is important that the requirement be fully justified in order to obtain the appropriate level of funding for acquisition.

Remember, the type of funding that you will choose will depend on the results of the requirements analysis and the analysis of alternatives.

For example, if the requirements analysis determined that an agency had an urgent requirement to obtain speech security equipment (voice “scramblers”) to safeguard voice telephone transmissions, this acquisition might be funded from stock funds.

On the other hand, if the requirement was for a continuing level of contractor maintenance of installed computers, this requirement would properly be funded by the O&M funds.

(continued on next page)

31.2 How Lease and Purchase Methods Are Funded *(continued)*

Current Year Appropriations

The first factor that you must consider in a FIP resources acquisition is *current year appropriations*. In other words, you must answer the question, “Do we have the money to cover this acquisition this year?” If the answer is “No,” then you cannot proceed with the obligation until the appropriate funds are available. **Remember, you may not spend funds that are not available.**

Switching Funds

Also, you may not switch funding from one fund to another in order to cover the cost of an acquisition. For example, if funding has been appropriated solely to obtain computers for support of research and development, you cannot use that funding to support the acquisition of maintenance services which should be properly covered under the O&M budget.

Possible Application of Commercial Financing Methods

One factor that you may investigate for funding of a FIP acquisition is the possible application of commercial financing methods. For example, some original equipment manufacturers (OEMs) may offer favorable terms, such as lower rates for larger purchases of FIP resources, or rebates. Since the Government always tries to obtain the best possible terms and conditions, you should ask about any special commercial financing incentives which may offer the Government a favorable alternative.

However, make sure that any commercial financing terms do not otherwise violate Government regulations.

(continued on next page)

31.2 How Lease and Purchase Methods Are Funded *(continued)*

Trade-in Versus Reutilization

Finally, the third factor that you should consider is trade-in versus reutilization. In some cases, you may be able to trade used FIP equipment back in to the original manufacturer or vendor, for credits against acquisition of newer or replacement items, if you have negotiated for trade-in at the time the original purchase contract was signed.

For example, as FIP equipment nears the end of its life cycle, you may have to help decide whether it is more advantageous to reutilize the equipment within the agency or to use trade-in credits against the purchase of newer equipment.

It is recommended that the specific trade-in values be negotiated and established prior to signing the contract. You can still attempt to negotiate for better terms later, prior to actual trade-in.

Trade-in may be a useful strategy if you expect very early obsolescence due to rapid advances in technology. However, you must be careful not to “lock in” to one vendor or supplier. On the other hand, even if FIP equipment becomes obsolete quickly, it may be advantageous to reutilize that equipment somewhere else in the agency.

Consider the following advantages and disadvantages when thinking about using a trade-in strategy.

TRADE-IN STRATEGY	
ADVANTAGES	DISADVANTAGES
<ul style="list-style-type: none"> Allows for constant upgrades, especially if frequent technology changes cause obsolescence Establishes value of trade-in credits in advance, but still allows Government a chance to negotiate for better terms prior to trade-in 	<p>Danger of “locking-in” one vendor or supplier for too long and curbing competition</p>

31.3 The Role of the Information Technology Fund

The Role of the Information Technology Fund

The Information Technology Fund (ITF) is a special kind of revolving fund established under the Paperwork Reduction Reauthorization Act of 1987. The GSA's Office of Technology Assistance (OTA) manages this fund as part of its role in assisting other agencies in the acquisition of FIP resources. An agency must reimburse the fund for any expenditures.

For example, if you need assistance in designing and installing a large Local Area Network system or other complex acquisition, your agency can sign a Memorandum of Understanding or Interagency Agreement with the OTA. That office will use the Information Technology Fund to provide expertise in such areas as system analysis, system design, acquisition planning, and other such acquisition consulting activities.

The ITF may even be used to acquire certain components of a system, such as servers, which are not available on GSA schedules, as long as the equipment is only a minor part of a major system. However, the ITF is not intended to be used primarily as a "backdoor source" for acquiring FIP hardware.

For example, if you are acquiring a LAN, the OTA might suggest certain servers and acquire them as a part of the consulting activities, but the ITF would not be used to purchase items, such as terminals or workstations, which are available on the GSA Schedules. The agency would purchase these items directly from the Schedules, using its own funding.

Of course, since this is a revolving fund, the requiring agency must reimburse the fund for any expenditures, such as system design costs, or any other expenditures.

For more information about the Information Technology Fund, contact the General Services Administration (KXMA) at (202) 501-1183.

31.4 When Multiyear Contracts Are in the Best Interest of the Government

Multiyear Contracts

There may be times when you will find that it is in the best interests of the Government to enter into a *multiyear contract* for FIP resources, especially for telecommunications.

Telecommunications services do not lend themselves to frequent or constant solicitations for new offers, because that might disrupt the agency's mission or work flow. It is clearly not in the Government's best interest to rebid every single year and risk disrupting telephone service, or requiring a contractor to remove large amounts of installed switching equipment every year. Also, the Government can often obtain more favorable terms, including lower prices, for a multiyear contract.

For these reasons, GSA has made it possible for an agency to award a multiyear contract for telecommunications. However, if you are considering a multiyear contract, make sure that the Agency Procurement Request (APR) specifically requests multiyear contracting authority and explains the estimated contract life and cost. Also, the GSA's Delegation of Procurement Authority to the requesting agency must provide such specific multiyear contracting authority. Check FIRMR Bulletin C-5.

Conditions for Multiyear Telecommuni- cations Contracts

FIRMR 201-20.306

FIRMR 201-20.306 specifically authorizes agencies to enter into multiyear contracts for telecommunications contracts when the following conditions are met:

1. the agency has a delegation of GSA's procurement authority;
2. the contract life, with options, will not exceed ten years; and
3. the agency complies with OMB budget and accounting procedures for appropriated funds.

31.4 When Multiyear Contracts Are in the Best Interest of the Government *(continued)*

Advantages and Disadvantages of Multiyear Contracts
(continued)

There are both advantages and disadvantages to multiyear contracts for a FIP resource acquisition. As a contract specialist, you should understand these and be able to make recommendations as to whether a multiyear contract is in the Government's best interest. The following table summarizes these advantages and disadvantages.

ADVANTAGES AND DISADVANTAGES OF MULTIYEAR CONTRACTS FOR FIP RESOURCES	
Advantages...	<ul style="list-style-type: none"> • Reduces the risk of interrupted or degraded services, especially for installed equipment such as telephone switching facilities. • Usually easier to administer over time, because the terms, conditions and personnel remain the same over a longer period. • Allows the Government to more accurately document the contractor's performance ("track record") over time, in those cases where past performance is important. • May allow the Government to negotiate more favorable terms over a longer period, such as use of options.
Disadvantages...	<ul style="list-style-type: none"> • Added risk that innovation, new approaches or new technology will be delayed, since the contractor has less incentive to innovate. • May reduce competition over the long run, since the incumbent contractor will develop competitive advantage (experience) over possible competitors. • May be more difficult to terminate for convenience of the Government because of the risk of interrupted service.

31.4 When Multiyear Contracts Are in the Best Interest of the Government *(continued)*

Advantages and
Disadvantages of
Multiyear
Contracts
(continued)

Of course, the weight and importance that the agency may give to each advantage or disadvantage will differ, according to the specific acquisition. For example, in some cases, the dangers of interrupted service may be so important that this will outweigh all possible disadvantages and a multiyear contract will be the only sensible option.

Long Term
Leasing

One common example of multiyear contracting is the use of long term leasing, particularly for telecommunications services. You will recall that many telecommunications sources are mandatory for use. Other telecommunications sources are mandatory for consideration, and the contracts and funding are already in place.

FIRMR 201-24.102 FIRMR Bulletin C-18

For example, FIRMR 201-24.102 requires agencies to use available consolidated local telecommunications services at certain designated locations. (Bulletin C-15 explains mandatory local telecommunications service in detail.) FTS 2000, for long term leasing of telecommunications services only, is another example of a long term contract, already in place, for which funding is established. (See FIRMR Bulletin C-18.)

Responsibilities of
the Contract
Specialist

Regardless of the type of financing that will eventually be selected, as a contract specialist, you must understand the types of funds available for FIP resources acquisitions and be able to advise personnel as to whether or not a specific type of funding is suitable for funding a given acquisition.

SUMMARY

In this chapter, you learned to choose the proper funding method for FIP resources. In the next chapter, you will learn how to analyze specifications for FIP resources acquisitions.

CHAPTER 32

ANALYZE SPECIFICATIONS FOR FIP RESOURCES ACQUISITION

Chapter Vignette

“I see that the Government must be really careful in acquiring FIP resources. It must be easy to make a mistake if you haven’t done the market research and considered possible obsolescence. I guess the key is developing the Statement of Work and specifications and applying the correct standards very carefully.”

“You are exactly right,” replied Marcia. “Of course, you should develop the SOW and specs carefully in any acquisition, but they are crucial in a FIP resources acquisition. There are some real horror stories in Government computer buys, but some specs have really withstood the test of time. You do need to know the strengths and weaknesses of these specs and when to use them.”

Course Learning Objectives

At the end of this chapter, you will be able to:

Overall:

Show the types of specifications that are typically used in FIP resource acquisitions and, for each type, describe the strengths, weaknesses, and conditions of use, including functional performance, design requirements, compatibility-limited, brand name or equal, and specific make and model.

Individual:

- 32.1 Review the definition of a specification.
- 32.2 Demonstrate the types of specifications that are typically used in FIP resource acquisitions and for each describe the strengths, weaknesses, and conditions of use.
- 32.3 Explain the term compatibility-limited in accordance with FIRMR and predict the impact on documentation requirements for compatibility-limited requirements.
- 32.4 Distinguish the differences among a specification, a standard and SOW.

Chapter Overview

Scope

This chapter provides an the analysis of specifications for FIP resource acquisitions. The analysis of specifications is a critical part of the acquisition process.

If the requiring agency does not select or develop the appropriate specifications and standards for a FIP resource acquisition, the risk of a faulty solicitation increases. As a result, the Government may not obtain the required FIP resources, and there may be a protest later.

You will find that, it is preferable to use specifications that have stood the test of time in FIP resource acquisitions. Specifications have certain strengths, weaknesses and appropriate use in any given acquisition.

Specifications that you decide to use will depend on the specific requirements of the FIP resource acquisition. It may be appropriate for you to use either *functional specifications*, *performance specifications*, *design specifications*, or *a combination of these*. If necessary, you may also have to *justify compatibility-limited specifications*.

References

In order to understand the topics in this chapter, you may require access to the following references:

- FAR Part 10, especially 10.001, 10.002(a)(4), 10.004(a)(1) and 10.006;
 - FIRMR, especially 201-20.103-4, 201-20.2, 201-4.001, 201-20.103-4, 201-20.303;
 - OMB Circular A-119, *Federal Participation in Development and Use of Voluntary Standards*
 - DFARS, especially 210-7000; and
 - Military Handbook 245C
 - GSA Index of Federal Specifications, Standards and Commercial Item Descriptions;
 - DoD Index of Specifications and Standards (DODISS);
-

(continued on next page)

Chapter Overview *(continued)*

Topics Covered in
this Chapter

This chapter includes the following topics:

SECTION	TITLE	PAGE
32.1	Definitions of Specifications	32-5
32.2	Differences Among Types of Specifications	32-9
32.3	Documentation for Compatibility-Limited Requirements	32-11
32.4	Differences among a Specification, a Standard and a SOW	32-14

32.1 Definitions

Common Definitions

In order to understand the topics in this chapter, you should know and refer to the common definitions below.

FAR 10.001

Specification—a description of the technical requirements for a material, product, or service that includes the criteria for determining whether these requirements are met. Specifications shall state only the Government’s minimum needs and be designed to promote full and open competition, with due regard to the nature of the supplies or services to be acquired.

FAR 10.001

Standard—a document that establishes engineering and technical limitations and applications of items, materials, processes, methods, designs, and engineering practices. It includes any related criteria deemed essential to achieve the highest practical degree of uniformity in materials or products, or interchangeability of parts used in those products. Standards may be used in specifications, invitations for bids, requests for proposals, and contracts.

FAR 10.001

Federal specification or standard—a specification or standard issued or controlled by the General Services Administration and listed in the GSA Index of Federal Specifications Standards, and Commercial Item Descriptions.

MIL-HDBK-245C

Statement of Work—a form of specification used in setting forth a requirement for services or work which describes the work or services to be performed, explains the methods to be used, and identifies the products to be acquired.

FIRMR 201-4.001

Compatibility-Limited Specification —a statement of FIP resources requirements expressed in terms that *require the items to be compatible with existing FIP resources*.

FAR 10.001

Brand Name Description —means a purchase description that identifies a product by its brand name and model or part number or other appropriate nomenclature by which the product is offered for sale.

FIRMR 201-4.001

Specific Make and Model—a description of the Government’s requirement for FIP resources that is so restrictive that *only a particular manufacturer’s products will satisfy the Government’s needs*, regardless of the number of suppliers that may be able to furnish that manufacturer’s products.

FAR 10.001

General Services Administration Index of Federal Specifications, Standards and Commercial Item Descriptions—the GSA publication that lists Federal specifications and standards, including supplements, that have been implemented for use by all agencies.

FAR 10.001

Department of Defense Index of Specifications and Standards (DODISS)—the DOD publication that lists unclassified Federal and military specifications and standards, related standardization documents, and voluntary standards approved for use by DOD.

(continued on next page)

32.1 Definitions *(continued)*

Types of Specifications

The types of specifications which may be used by an agency to describe a FIP resource requirements may be:

- functional
- performance
- design
- combination
- compatibility-limited
- specific make and model

Functional Specifications

Functional specifications are those which identify the functions to be performed.

For example, Attachment A, of FIRMR Bulletin C-8 (Information Accessibility for Employees with Disabilities) contains functional specifications you can use when acquiring FIP equipment to be used by employees with disabilities. One example concerns color presentation:

“When colors must be distinguished in order to understand information on the display, color-blind end users should be provided with a means of selecting the colors to be displayed.”

You can see that this tells the offeror what goal must be attained, without over-specifying how it is to be attained.

Hardware Example of Functional Specification

You might also require a functional specification for hardware. For example, you may wish to specify a “keyguard” to assist a motor-disabled user to stabilize movements and ensure the right keys are depressed on a computer keyboard. (A keyguard is a keyboard template with holes corresponding to the location of the keys.) In this case, the functional specification for the hardware (the keyguard) might look like this:

“The contractor shall provide a keyguard for each keyboard in order to enable a motor-disabled user to stabilize movements and ensure that the intended key is pressed.”

32.1 Definitions *(continued)*

Performance Specifications

Performance specifications require an item to meet certain performance terms, such as time to complete a given function or process. Performance specifications include factors such as:

- throughput
- record file sizes and characteristics
- printer input/output volumes and speeds
- terminal volumes and response times

For example, a performance specification for a laser printer may be the capability to print 52 pages a minute.

You can see that performance specifications give the offerors more leeway than a design specification or a specific make and model.

Design Specifications

The requiring agency may utilize a *design specifications* when FIP resources are defined by the Government such as: screen size can be no greater than 15 inches and/or weight cannot exceed 10 lbs. Design specifications can be quite restrictive.

Combination Specifications

Of course, some FIP resource acquisitions may include a combination of any and/or all specifications.

For example, you could have a combination specification for a printer that prints 1000 pages per minute but the footprint (size) cannot exceed 24 by 36 inches utilizing normal office power sources.

Compatibility-Limited Specifications

Compatibility-limited specifications are restrictive. They require the offeror to provide an item that is compatible with existing FIP resources. For example, you might use a compatibility-limited specifications to require that “workstations provided shall be compatible with the installed AIX version of the UNIX system.” Compatibility limited specifications must be justified in accordance with FIRMR 201-4.001.

(continued on next page)

32.1 Definitions *(continued)*

Specific Make and
Model
Specifications

Specific Make and Model specifications are the most restrictive type of specifications that only a particular manufacturer's product will satisfy the Government's needs, regardless of the number of suppliers that may be able to furnish that manufacturer's products. For example, you might specify that:

"The only large capacity optical storage devices acceptable will be the Model 123 devices manufactured by the XYZ Corporation."

You can see that a specific make and model specification is extremely restrictive and reduces competition. You should, therefore, be very careful about requiring a specific make and model specification. A justification and approval is required for this type of specification.

32.2 Differences Among Types of Specifications

FAR Part 10 Guidance on Specifications

FAR Part 10.004 (a)(1)

FAR Part 10.004 (a)(1) provides the general guidance on use of specifications. It explains that in selecting specifications or descriptions for use, you should:

- State only the Government’s *actual minimum needs*;
- Cite applicable specifications and standards;
- “Selectively” apply and “tailor” specifications and standards to meet the particular acquisition;
- Avoid using “specific make and model” provided by only one manufacturer. (*However, you may specify “brand name” or “equal, plus salient characteristics, to qualify as a competitive acquisition”*)

Strengths, Weaknesses and Conditions of Use

The following table summarizes the strength, weakness and condition of use for the various types of specifications.

Using Design and Performance Specifications			
Type	Strength	Weakness	Conditions
Functional Specifications	Promote innovation and competition	Require great care to ensure all requirements are “spelled out”	Preferred type; Use whenever possible
Performance Specifications	Promote innovation and competition	Must be carefully tailored	Useful when time and speed requirements are a consideration
Design Specifications	Useful for ensuring compatibility or limiting size	May unduly restrict innovation	Useful when you require FIP resources already defined by Government design features, such as a maximum size.
Combination Specifications	Can combine best features and strengths of specifications	Can be very difficult to write	Use when necessary to combine strengths of various specifications; often used for software
Compatibility Specifications	Very specific. Ensure compatibility with existing FIP resources	May restrict innovation; require justification	Use when compatibility is essential and require justification
Specific Make and Model	Very specific; little chance of misunderstanding	Extremely restrictive; inhibits competition; may require extensive justification	Use only when absolutely necessary; ensure it is fully justified. Consider “brand name or equal,” if possible alternative.

32.2 Differences Among Types of Specifications *(continued)*

Selecting Specifications

Specifications to be used will usually be selected by the technical personnel in the requiring agency. However, you must be aware that they may select improper, incomplete or inappropriate specifications and you may have to recommend that the agency revise the specifications for the acquisition.

It is the responsibility of the contracting personnel to ensure that the specifications utilized:

- Do NOT unnecessarily restrict competition, and
 - Are justified.
-

32.3 Documentation for Compatibility-Limited Requirements

Introduction

FIRMR 201-4.001

This section discusses documentation for compatibility-limited requirements. You will recall that a compatibility-limited requirement is one which must be compatible with existing FIP resources (FIRMR 201-4.001). Most activities and program offices already have large quantities of FIP resources installed, so you can understand why they must be concerned that new FIP resources are compatible with those on hand.

Documentation for Compatibility- Limited Requirements

*The problem with a compatibility-limited specification is that it may unnecessarily restrict competition. **Therefore, it must be fully justified.***

A requiring agency may submit a compatibility-limited specification when there is a need for a FIP resource which must work with, connect to, or utilize an existing FIP resource. When this happens, you should review the justification carefully to be sure it fully supports the compatibility-limited requirement. Remember, the justification must come from the user, and include as a minimum:

FIRMR 201-20.103-4(b)(1) & (2)

- Technical or operational requirements for compatibility,
- Risk and impact of a conversion failure on agency critical mission needs are so great that non-compatible resources are not a feasible alternative.

Factors to Consider

FIRMR
201-1-20.103-4(a)

FIRMR 201-1-20.103-4(a) requires the user to consider the following factors in determining whether a compatibility-limited acquisition is justified:

- Is the compatibility-limited requirement essential to retain the existing software without redesign to meet agency critical mission needs?
- Is the Government likely to suffer serious injury, financial or otherwise, if conversion to another system is unsuccessful?
- How essential is it to maintain parallel operations? Is it necessary to continue operating the old system in parallel with the new system until the new system can fully support the agency's mission needs?

If these factors have not been addressed in the requirements analysis, it is possible that the compatibility-limited justification will NOT be sufficient to withstand a protest.

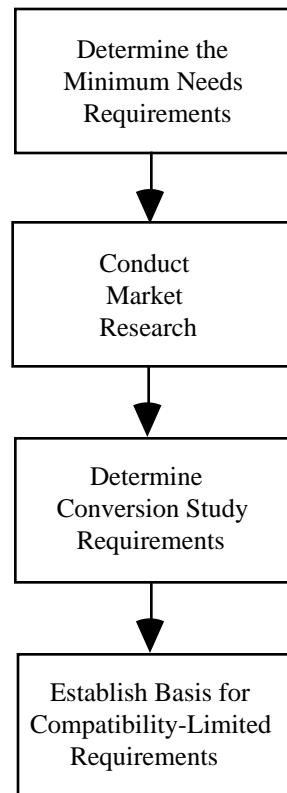
(continued on next page)

32.3 Documentation for Compatibility-Limited Requirements *(continued)*

Four-Step Process
for Justification
by the User

FIRMR Part 20

If it is necessary to justify a compatibility-limited requirement, the user should have accomplished the four steps as shown below. These are outlined in FIRMR Part 20.



32.3 Documentation for Compatibility-Limited Requirements *(continued)*

Decision Table

The decision table below summarizes the actions that you must verify in a compatibility-limited requirement to ensure that competition has not been unnecessarily restricted.

If...	Then..
The requiring agency has specified a compatibility-limited requirement, and NOT conducted a requirements analysis	Return to user to conduct a requirements analysis to determine the agency's minimum needs in accordance with FIRMR 201-20.103-4
A conversion study is required, but has NOT be conducted	Return to the requiring agency to conduct a conversion study. (See FIRMR 201-20.203-4)
The requirement for a compatibility-limited specification is justified	Obtain copy of the decision and incorporate the specification into the RFP. (See FIRMR 201-20.103-4)
The requirement for a compatibility-limited specification is NOT justified	Return to the requiring agency. (See FIRMR 201-20.103-4)

Unacceptable Justification

FAR 6.301(c)

You should be aware that lack of advance planning or the unavailability of fiscal year funds is NEVER a valid basis for justifying a restrictive acquisition. (See FAR 6.301(c).) Remember, the compatibility-limited justification MUST be in accordance with FIRMR 201-20.103-4(a)(1) and (2).

32.4 Differences Among a Specification, a Standard and a SOW

Differences Among Specifications, Standards, and a SOW

There are important differences which you must understand about specifications, standards, and the SOW in a FIP resource acquisition:

- “specification” means a *description of the technical requirements* for a product used to determine acceptability.
- “standard” is a document that establishes engineering and technical limitations and applications of items, materials processes, methods designs and engineering practices. Example: electrical standards established by societies of manufacturers and electrical engineers for private sector use, but available to the Government.
- “statement of work” is the complete description of work to be performed under the contract, encompassing all specifications and standards established or referenced in the contract.

Remember the requiring agency or program office will normally select all the appropriate specifications and standards, and may even draft the original SOW for a FIP resource acquisition. However, as the contract specialist or contracting officer, you are responsible to review the specifications and standards, require any necessary justifications, and edit the SOW as required to support selection of the most advantageous offer.

Impact of Brooks Act on Specifications

There is one more thing that you must remember about specifications. FIPS resources to support intelligence activities, encryption, and command and control of military forces are NOT subject to the Brooks Act. Therefore, the requiring activity has more leeway in developing specifications for these types of requirements.

SUMMARY

In this chapter, you learned about the types of specifications that are typically used in FIP resources acquisitions and, for each type, the strengths, weaknesses, and conditions of use, including functional performance, design requirements, compatibility-limited, brand name or equal, and specific make and model. In the next chapter, you will learn how to determine the relevancy of the *Federal ADP and Telecommunications Standards Index* and how to distinguish whether these standards are either incorporated into the solicitation or waived.

CHAPTER 33

REVIEW STANDARDS FOR FIP RESOURCES ACQUISITIONS

Chapter Vignette

“I’m getting nervous again about developing a FIP resources solicitation, “ said Mark. “Hey, am I going to get some help in developing this thing?”

“First things first,” Marcia replied. “You will have help, including technical expertise from the people who develop the requirements and standards, but you cannot just blindly accept their requirements and proposed standards. You need to know the seven different categories of FIP standards, and you have to understand the differences among them. You must be familiar with the Federal ADP and Telecommunications Standards Index as an acquisition tool. You will find that some standards can be incorporated into the solicitation or waived, but you have to be ready to work knowledgeably with the technical staff.”

Course Learning Objectives

At the end of this chapter, you will be able to:

Overall:

Determine the relevancy of the “Federal ADP and Telecommunications Standards Index” and distinguish how these standards are either incorporated into the solicitation or waived.

Individual:

- 33.1 Describe roles and responsibilities related to standards.
- 33.2 Summarize the seven categories of FIP standards.
- 33.3 Explain the relevance of the *Federal ADP and Telecommunications Standards Index*. and illustrate how these standards are either incorporated into the solicitation or waived.
- 33.4 Illustrate conditions when standards would not be used.

Chapter Overview

Scope

This chapter describes the role of standards in the FIP resources acquisition process. Although we often take standards for granted, they are important to our day-to-day life. Imagine, for example, a world where standard light bulb sizes, electrical sockets, or disk sizes and formats did not exist! As you know, there are existing standards for nearly all the supplies and services which the Federal Government regularly acquires.

Like many other aspects of FIP resource acquisitions, Congress decided that FIP resource standards are sufficiently important to require a separate program. As you learned in Chapter 1, the *Brooks Act* established the Federal Computer Systems Standards Program, now run by the National Institute of Standards and Technology (NIST). In addition, the General Services Administration (GSA) became responsible for implementing computer standards in the procurement, utilization, and disposition of computer equipment.

Before the statutory merging of ADP and telecommunications brought about by the *Paperwork Reduction Reauthorization Act*, GSA was responsible for telecommunications standards development. However, in 1972, GSA delegated this responsibility to DOD's National Communication System (NCS), but retained final approval and implementation authority.

So, you should understand that today there are three primary parties involved in the development and use of Federal standards:

- NIST, responsible for ADP and some telecommunications standards as defined in the *Paperwork Reduction Reauthorization Act*, issues *Federal Information Processing Standards (FIPS)*
- NCS, responsible for telecommunications standards not managed by NIST, develops *Federal telecommunications standards (FED-STDs)*
- GSA, responsible for standards implementation, and issues guidance that explains to contracting officers how to specify requirements using FIPS and FED-STDs

(Topic continued on next page)

Chapter Overview

Scope (continued)

FIPS and FED-STDs are *mandatory* Federal standards, *to the extent that they apply to the agency's requirement*. This permits agencies to exercise discretion in the use of standards based on agency need.

This chapter presents information you will need to review the standards proposed by technical personnel in a proposed FIP resource acquisition and to determine whether those proposed standards should be incorporated into a solicitation, waived, or does not apply.

References

In order to understand the discussion in this chapter, you should be familiar with the following references:

- The FIRM, Subpart 201-20.303, *Standards*
 - FIRM Bulletin C-3, which provides ordering information for the Index
 - The *Federal ADP and Telecommunications Standards Index*, updated biannually by GSA
 - Proposed and newly issued standards for a FIP resources acquisition, published in the *Federal Register*
-

Topics Covered in this Chapter

This chapter includes the following topics:

SECTION	TITLE	PAGE
33.1	Roles and Responsibilities Related to Standards	33-5
33.2	Seven Categories of FIP Standards	33-6
33.3	The Relevance of the Federal ADP and Telecommunications Standards Index	33-10
33.4	Conditions When FIP Standards Would Not Be Used	33-14

33.1 Roles and Responsibilities Related to Standards

Responsibilities of Technical Personnel

FIRMR 201-
20.303(c)

The responsibility for determining which standards apply to an acquisition rests with technical personnel.

FIRMR 201-20.303(c) explains that, when a Federal agency has a requirement for a FIP resource, the technical and requirements personnel in that agency shall review each proposed standard to determine its applicability to each requirement and work with the contracting personnel to ***“ensure that all applicable Federal standards are specified in any resulting solicitation.”***

Contracting Personnel

FIRMR 201-
39.1002

Contracting officers are responsible under the FIRMR for including in solicitations terminology that incorporates each standard applicable to the type of FIP resources being acquired.

You are not expected to be an expert on standards proposed for a FIP resource requirement, but you are expected to work closely with the agency’s technical and requirements personnel to make sure that they provide this information to be used for solicitation development. You should also be familiar enough with the requirement and with Federal standards to make sure that technical personnel have provided you with a complete list.

Need for Close Coordination

FIRMR 201-
20.303(c)

You can see that the selection of the proper standards for a FIP resource acquisition requires close and careful coordination. In fact, FIRMR 201-20.303(c) requires such coordination between the technical personnel and contracting personnel.

33.2 Seven Categories of FIP Standards

Seven Categories of Standards

FIRMR 201-20.303

FIRMR 201-20.303 describes *seven different categories* of standards that apply to FIP resources. These seven categories, commonly used for ADPE and telecommunications acquisitions, are summarized in the following table.

SEVEN CATEGORIES OF STANDARDS	
1.	<i>Hardware Standards</i> - include FIPS such as FIPS 157 dealing with image scanners.
2.	<i>Software Standards</i> - include FIPS such as FIPS 160 concerning C language.
3.	<i>Applications Standards</i> - FIPS - none currently specified.
4.	<i>Data Standards</i> - include FIPS such as FIPS 4-1, concerning date codes.
5.	<i>Operations Standards</i> - FIPS - such as FIPS 46-1 concerning data encryption.
6.	<i>Telecommunications Standards</i> - include FED-STDs such as FED-STD 1002A, concerning time and frequency standards.
7.	<i>Computer-related Telecommunications Standards</i> - include FIPS such as FIPS 138, concerning circuitry characteristics.

Although not currently in the FIRMR, the Index uses one additional category: *Computer Security*. For example, FIPS 46-1, Data Encryption Standard, once listed as an ADP operations standard, is now categorized as a computer security standard. You may recall that the *Computer Security Act of 1987* authorized the Secretary of Commerce (with the support of NIST) to issue such standards.

Note that GSA's seven categories of standards include both FIPS—sometimes referred to as FIPS PUBS, short for *Federal Information Processing Standards Publications*—and FED-STDs.

As discussed in the Chapter Overview, FIPS cover standards related to ADPE, defined by the *Paperwork Reduction Reauthorization Act* to include certain telecommunications resources. FED-STDs include those categories in the Federal Supply Class (FSC) of “Telecommunications” of the Federal Standards Program which are NOT defined as ADPE under the *Paperwork Reduction Reauthorization Act of 1986*.

Nonetheless, how FIPS are categorized will mean less to you than whether a given standard—FIPS or FED-STD—applies to your acquisition.

(continued on next page)

33.2 Seven Categories of FIP Standards *(continued)*

Use of Other Standards

There are dozens of Federal standards. You may find that these standards do not completely describe an agency requirement. When this occurs, it may be necessary for your agency to use other standards, such as *interim standards, voluntary standards developed by the private sector, agency-unique standards, or alternate standards*. In addition, there are *military standards, national standards and international standards*.

Use of Interim Standards

In some cases, you may find that there are no precise, permanent standards that meet the requirement. In such cases, the requiring agency may choose to use one or more *interim standards*.

FIRMR 201-
20.303(c)(2)

An interim standard is a standard that has not been permanently adopted by the Federal Government, but which may be used in an acquisition for FIP resources if it is to the agency's advantage. In fact, FIRMR 201-20.303(c)(2) encourages agencies to use interim standards, when no federal standard applies.

Use of an interim standard may require development of standard solicitation clauses. Agency technical and contracting personnel may need to prepare the specification for the standard.

Use of Voluntary Standards

FIRMR 201-
20.303(c)(3)

If Federal standards do not exist for the type of FIP resources your agency plans to acquire, FIRMR 201-20.303(c)(3) advises that you consider the use of *voluntary standards*. Voluntary standards are standards developed by industry and trade associations, which have been adopted throughout a domestic industry or even internationally.

For example, the American National Standards Institute (ANSI) establishes many industry standards that are mandatory for all American manufacturers, but which you may use in a Government solicitation on a voluntary basis. One example is ANSI X.12 for electronic data interchange. Another example of a voluntary standard is the Personal Computer Memory Card International Association (PCMCIA) standards developed for portable and laptop computers.

Underwriters Laboratory is an example of an organization that develops standards you may find useful and voluntary use

(Topic continued on next page)

33.2 Seven Categories of FIP Standards *(continued)*

Use of Voluntary Standards (continued)

Note that association and industry members may be bound by these standards, but *their use by the Federal Government is voluntary*. Nevertheless, these standards can be very useful, especially when a Federal agency intends to acquire a commercially available item for which a federal standard is not yet approved.

National and international ADP, telecommunications, and office systems standards are listed in the *Federal ADP and Telecommunication Standards Index*.

Use of Agency-Unique Standards

FIRMR 201-
20.303(c)(4)

In cases where there are no Federal, national, or international standards, the FIRMR requires agencies to “consider the development and use of agency-unique standards.”

However, two major restrictions apply.

First, such standards must **NOT** violate the requirements for “full and open competition” in the *Competition in Contracting Act*. For example, an agency may not develop and use an interim standard that is so restrictive that it unfairly eliminates all but one potential offeror or specifies a single make and model.

Second, agencies planning to use an agency-unique standard must coordinate with NIST.

If your agency’s technical staff proposes using an agency-unique standard, *you should remind them of these requirements*.

Use of Alternate Standards

FIRMR 201-
20.303(c)(5)

In some cases, an agency may want to use a standard other than a Federal standard. For example, an agency may find that another standard used by industry is more suitable than an existing FIPS. This type of standard is called an *alternate standard*.

The head of the agency may permit use of such an alternate standard, such as for the acquisition and use of computer security items. However, in such cases, *the standards **must** be more stringent than the applicable federal standards **and** contain at least the functional provisions of the applicable federal standard*.

(Topic continued on next page)

33.2 Seven Categories of FIP Standards *(continued)*

Use of Alternate Standards (continued)	For example, an agency could not require an offeror to provide a FORTRAN software language system that did not at least meet the functional provisions of the FIPS 69-1.
Use of Other FIPS PUBS	You should also be aware that there are other FIPS PUBS that you may want to specify. NIST refers to them as Non-Mandatory, Guidelines, and Program Information Documents. For example, FIPS 180, Secure Hash Standard, is for writing algorithms and FIPS 106, is a Guideline on Software Maintenance.
Encouraging Industry Comments on Standards	You can rely on prospective contractors to help ensure that you have specified complete and up-to-date standards and specifications by using DRAFT solicitations and presolicitation conferences. When technology is advancing rapidly, as is always the case with FIP resources, comments from prospective offerors may reveal defects in the Government's proposed standards or specifications. You can then correct these defects before final release of the solicitation.

33.3 The Relevance of the Federal ADP and Telecommunications Standards Index

Introduction

Usually, technical personnel in the requiring agency who develop the requirement for FIP resources will cite one or more FIPS or FED-STDs for inclusion in the solicitation. The cited standards are your *starting point* when determining how your solicitation for FIP resources will specify standards.

You CANNOT assume that the requiring agency's technical personnel fully researched the standards. *If in doubt, ask to make sure the requiring agency checked the FIPS and FED-STDs for applicability to the acquisition.*

Usually, you will be able to determine in discussions with the agency technical personnel why they selected certain standards and whether these standards are really appropriate. If they have not, you should refer them to the *Federal ADP and Telecommunications Standards Index*.

Contents of the Index

The *Federal ADP and Telecommunications Standards Index*, updated twice each year, is the starting point for researching FIP resources standards. The Index provides information on:

- National and International Standards
 - FIPS and FED-STDs
 - Subject Index of Federal and Industry Standards
 - Non-Mandatory, Guidelines, and Program Information Documents
 - Standards Checklist.
 - Terminology to Incorporate Standards in Solicitations
-

(continued on next page)

33.3 The Relevance of the Federal ADP and Telecommunications Standards Index (continued)

Subject Index of
Federal and
Industry Standards

The *Subject Index of Federal and Industry Standards* is the first tool you should use to determine if technical personnel have been thorough in evaluating the applicability of standards. The index organizes the standards and guidelines by technical area, such as graphics, disk, and data transmission, with columns to indicate whether the standard may apply to mainframe, minicomputers, or personal computers. The table below shows how the information is presented in the Index.

INFORMATION SYSTEMS MATRIX			
FIPS/FED-STDS/OTHER	MAIN	MINI	PC
I. INFORMATION INTERCHANGE			
a. INFORMATION INTERCHANGE CODES			
(S) FIPS 1-2 (ASCII)	•	•	•
b. CHARACTER SET REPRESENTATION			
(S) FIPS 32-1 (OCR)	•	•	•
(S) FIPS 33-1 (OCR)	•	•	•
(I) ANSI X3.42-1975			
(I) ANSI X3.78-1981			
c. GRAPHICS			
(S) FIPS 128 (CGM)	•	•	•
(S) FIPS 153 (PHIGS)		•	•
d. OPTICAL CHARACTER RECOGNITION			
Print Quality, Positioning, and Specifications			
(S) FIPS 32-1 (OCR)	•	•	•
(S) FIPS 89 (OCR)	•	•	•
(G) FIPS 90 (OCR)			
(S) FIPS 129 (OCR)			
(I) ANSI X3.3-1970			

[Note: ANSI standards are voluntary national standards.]

(continued on next page)

33.3 The Relevance of the Federal ADP and Telecommunications Standards Index (continued)

Standards Checklist Another tool is the *Standards Checklist*, which serves as a convenient guide for reviewing and determining the applicability of standards. The standards checklist is organized as shown in the table below.

STANDARDS CHECKLIST AS OF 04/01/93

Check Appropriate Column			
Standard Applies	Standard Does Not Apply	Standard Applies But Was Waived	Standard Titles
FEDERAL INFORMATION PROCESSING STANDARDS (FIPS)			
			FIPS 1-2, Code for Information Interchange, Its Representations, Subsets, and Extensions FIPS 2-1, Perforated Tape Code for Information Interchange FIPS 4-1, Calendar Date FIPS 5-2, Codes for the Identification of the States, District of Columbia, and the Outlying Areas of the United States, and Associated Areas

Using the standards checklist, agency technical and contracting staff determine whether the standard:

- Applies,
- Does not apply, or
- Applies, but use is waived.

The *Federal ADP and Telecommunications Standards Index* will help you make these decisions.

(Topic continued on next page)

33.3 The Relevance of the Federal ADP and Telecommunications Standards Index (continued)

Standards
Checklist
(continued)

The Standards Checklist is sometimes incorporated into solicitation documents in place of the standard terminology. In fact, to make sure that no standards are overlooked, you should regularly include a Standards Checklist in your solicitations.

Use of the checklist is strongly encouraged because it can make a complicated FIP resource acquisition easier for offerors to understand and increases the quality and simplicity of the proposals that you will have to evaluate.

How to Obtain an
Index and
Checklist

You can order the *Federal ADP and Telecommunications Standards Index*, which includes the Standards Checklist, from:

Superintendent of Documents
Government Printing Office
Washington, DC 20402

This document is also on GSA's CD-ROM.

33.4 Conditions When FIP Standards Would NOT be Used

Introduction

The technical experts in the requiring agency are responsible for selecting standards to be incorporated into a solicitation. *However, you are responsible for making sure that the appropriate standards have been selected. The contracting officer must seek appropriate waivers (as applicable) prior to incorporating standards into the solicitation.*

Remember, in any given FIP resource acquisition, each standard will either:

- Apply and be incorporated into the RFP,
 - NOT apply, in which no further action is taken, or
 - Apply, but needs to be waived.
-

When Standards Would NOT Be Used

Sometimes, it's easy to decide that a standard does NOT apply. For example, if you are buying support services, standards in the hardware category clearly do not apply. In these cases, technical or contracting staff using the Standards Checklist would check the column "Standard does not apply." No further action would be required.

However, at other times the determination may be quite difficult. For example, FIPS 161, Electronic Data Interchange (EDI) is applicable:

“to the interchange of data between Federal agencies or organizations if the data are to be transmitted electronically, and ANSI X.12 transaction sets or EDIFACT messages meet the data requirement of the agencies or organizations for the subject of the interchange have been developed and approved under the conditions set forth in FIPS 161.”

Note that the requiring agency may be interchanging data—the primary technical area of the standard—but determine that ANSI X.12 transaction sets do not meet the agency's data requirements. In that case, the standard would not apply.

There are other situations when an agency might decide that a standard should not be specified. For example, suppose an agency's technical staff evaluated the effect of specifying a new standard—and determined that requiring conformance with the standard would have a negative effect on required compatibility with current resources or a negative effect on competitiveness and cost. In such examples, the agency could decide to waive use of the standard but must justify such a waiver.

(continued on next page)

33.4 Conditions When FIP Standards Would NOT be Used *(continued)*

Waivers and Exceptions

FIRMR 201-
20.303(d)
DFARS 239.7202

FIRMR 201-20.303(d) and DFARS 239.7202 provide guidance on waivers and exceptions.

Briefly, FIRMR 201-20.303(d) explains that:

- The Secretary of Commerce has delegated to the heads of executive departments and agencies the authority to waive *FIPS* that are compulsory for agency use in the acquisition and management of FIP resources
- The General Services Administration alone has authority to grant an exception to the use of *FED-STDs*.

If the requiring agency plans to waive use of a mandatory FIPS or FED-STD, you should make sure that the request for waiver has been submitted to and approved by the agency head or that the request for exception has been submitted to and approved by GSA.

Requests for Exceptions

Requests for exception to use of a FED-STD should be sent to:

General Services Administration
Policy and Regulations Division (KMP)
18th and F Streets, NW
Washington, DC 20405

Deviations

FIRMR 201-4.001

Usually, if you need to vary from a specific requirement of the FIRMR, you need to obtain permission in the form of a deviation.

However, if an individual FIPS standard is waived, then you do NOT need a deviation from the FIRMR. Also, if GSA grants an exception to the use of an individual FED-STD, then you do NOT need a deviation from the FIRMR.

Remember all FIPS PUBS are required. However, those addressed as guidelines are recommended.

(continued on next page)

33.4 Conditions When FIP Standards Would NOT be Used *(continued)*

Summary

Decision Table

The following decision table summarizes the actions that you should take as a contracting officer or contract specialist when reviewing standards for FIP resource solicitations.

Decision Table	
Summary of Actions on Review of Standards for a Solicitation	
If...	Then...
The requiring agency's technical experts have proposed standards...	Make sure that the standards are appropriate. Ask to be sure. Check the Federal ADP and Telecommunications Standards Index.
The requiring agency's technical experts have NOT proposed standards...	Advise them they should research and propose standards. Refer them to the Federal ADP and Telecommunications Standards Index.
Proposed standards do NOT seem to be appropriate...	Consult with technical experts to select more appropriate standards.
Federal Standards are NOT appropriate...	Consider voluntary standards from industry, such as ANSI standards, OR Consider using interim standards, OR Consider using agency-unique standards, coordinating with NIST, OR Determine whether FIPS should be waived or whether an exception should be requested.

(continued on next page)

33.4 Conditions When FIP Standards Would NOT be Used *(continued)*

How to Obtain
Individual FIPS

You can obtain individual Federal Information Processing Standards (FIPS) from:

National Technical Information Service (NTIS)
U.S. Department of Commerce
Springfield, VA 22161

You can obtain individual Federal Telecommunications Standards (FED-STDs) from:

General Services Administration
Federal Supply Service Bureau (FSSB)
Specifications Section, Suite 8100
490 East L'Enfant Plaza, SW
Washington, DC 20407

SUMMARY

In this chapter, you learned how to use the *Federal ADP and Telecommunications Standards Index* and to distinguish how these standards are either incorporated into the solicitation or waived. In the next chapter, you will learn how to analyze a Statement of Work (SOW).

CHAPTER 34

ANALYZE STATEMENTS OF WORK FOR FIP RESOURCES ACQUISITIONS

Chapter Vignette

“Now that you understand the importance of specifications and standards, you should be ready to critique a proposed SOW for a FIP acquisition,” Marcia said. “Even if the appropriate specifications and standards have been chosen, the language of the SOW can cause serious problems if it is not carefully written. There are definitely some things you should look for when you critique a proposed SOW and that applies to all seven groups of FIP resources. Otherwise, you run a great risk of releasing a SOW which may not attain the Government’s acquisition objectives.”

Course Learning Objectives

At the end of this chapter, you will be able to:

Overall:

Analyze a Statement of Work (SOW).

Individual:

- 34.1 Relate the purpose of an SOW.
- 34.2 Summarize the general content of a SOW.
- 34.3 Show the importance of a well-written scope statement.

Chapter Overview

Scope

This chapter presents the information you will need in order to analyze the use of a SOW for a proposed FIP resource acquisition.

After you have determined that specifications and standards proposed for a FIP resources acquisition are appropriate (see Chapters 32 and 33), you must then make sure that the SOW states exactly what is required of the contractor to meet the Government requirements. It is possible to select the perfect standards for a solicitation, and still write a poor SOW that confuses offerors and leads to poor performance on a contract.

It is critical that offerors clearly and fully understand the Government's requirements so they can make realistic technical and cost proposals. This is important in all acquisitions, but especially in complex ones, including many FIP resources acquisitions.

Topics in This Chapter

This chapter includes the following topics:

SECTION	TITLE	PAGE
34.1	Purpose of a SOW	34-4
34.2	General Content of a SOW	34-5
34.3	Importance of a Well-Written Scope Statement	34-14

References

You may need the following reference in order to follow the topics in this chapter:

- Military Handbook 245C (MIL-HDBK-245C)
-

34.1 Purpose of a Statement of Work

Introduction

A statement of work is a very important document in the acquisition process. Misunderstanding or confusion by the offerors because of a poorly written statement of work (SOW) can lead to nonresponsive proposals. Therefore, it is important to understand the purpose of an SOW, so that it is written to fulfill its purpose.

Purpose of SOW

The purpose of a SOW is to clearly describe the tasks to be performed, products to be furnished, services to be supplied, and sometimes the methods to be used for an acquisition, so that offerors will have a clear understanding of the Government's requirements and can provide accurate responses to meet the Government's needs. It is important that the SOW be well-written to eliminate ambiguity and prevent confusion. SOWs must describe exactly what the requiring agency needs so that the Request for Proposal or Invitation for Bids can be developed correctly and accurately.

Difference Between a Specification and a SOW

A SOW is the complete description of work to be performed under the contract, encompassing all specifications and standards established or referenced in the contract. It may also explain the methods to be used, and identifies the products to be acquired. A specification is a description of the technical requirements for a material product or service that includes the criteria for determining whether these requirements are met.

Specifications for a requirement are described in the statement of work.

34.2 General Content of a SOW

General Content of SOW

The SOW contains a statement of the work to be performed, along with the supporting background information, listing of documents needed, specific tasks to be done, and an explanation of any special conditions that apply to delivery, inspection/acceptance, and place of performance.

In short, a SOW provides information on the WHO, WHAT, WHERE, WHEN, and HOW of performance.

Format for SOW

There is no set format for the SOW in a FIP resource acquisition used by all agencies. However, the GSA has developed a set of standard solicitation documents for FIP systems hardware, software, and maintenance. This set is available from the Government Printing Office. In addition, your office probably has useful examples of SOWs from previous FIP resource acquisitions, which you can use for reference.

In addition, Military Handbook 245C, dated Sep 1991, discusses six recommended formats for the preparation of a SOW. None of these six corresponds specifically to the acquisition of information resources, but you can adapt and tailor the format for a FIP resource acquisition.

(continued on next page)

34.2 General Content of a SOW *(continued)*

Example of a Preferred Format

The following format is an example of a preferred format, taken from Exhibit 3 of Military Handbook 245C. Note that this example is for a “brand name or equal” requirement.

- Section 1 - Scope
- Section 2 - Background
- Section 3 - Applicable Documents
- Section 4 - Tasks
- Section 5 - Contract Deliverables
- Section 6 - Government Furnished Facilities and Services
- Section 7 - Contractor Furnished Property and Services
- Section 8 - Acceptance and Inspection
- Section 9 - Place of Contract Performance
- Section 10 - Task Completion Date
- Section 11 - Place of Inspection and Acceptance of Deliverables
- Section 12 - Security Requirements

Enclosures to the SOW

1. Attachments (Background Information)
2. Appendices (Specifications and Requirements)
3. Schedules (Delivery or Period of Performances)
4. Exhibits (Applicable Documents) are attached at the end of the SOW

Analyzing Format and Content

As a contract specialist or contracting officer, you will be responsible for the format of the solicitation. Much of the content will be provided by technical staff within the agency. You must be prepared to analyze the content, as well as the format, in order to ensure that the SOW meets all requirements and avoids problem areas, such as restricting competition.

(continued on next page)

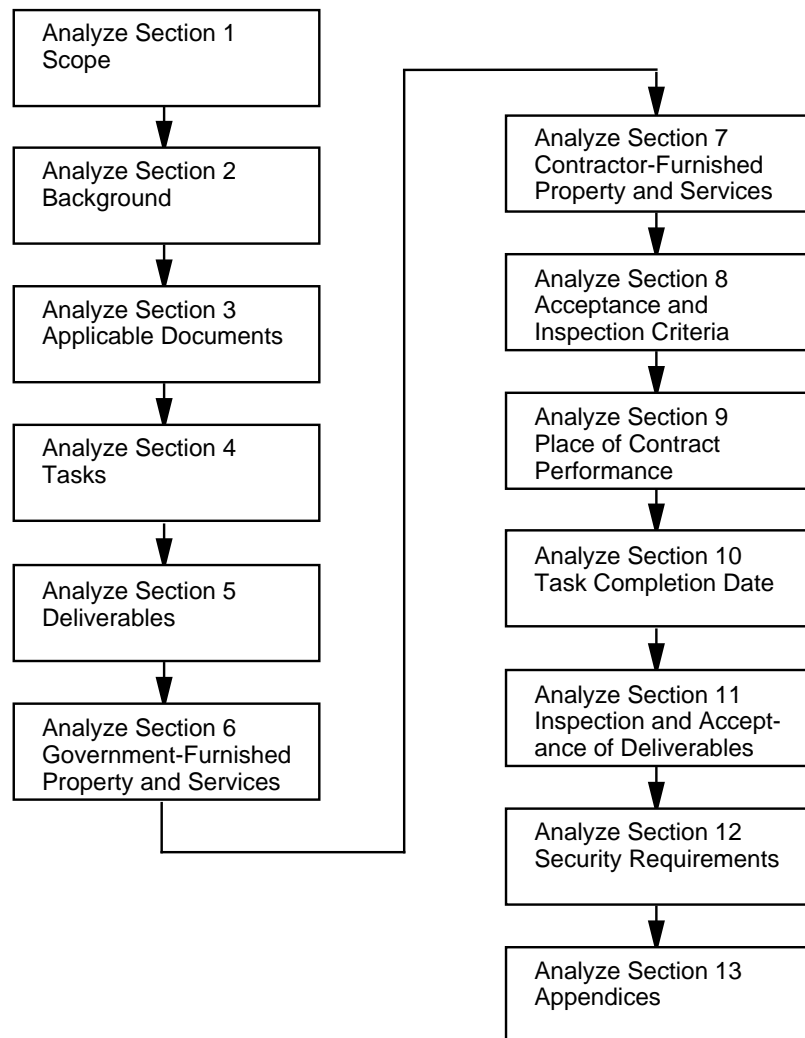
34.2 General Content of a SOW *(continued)*

Content of the SOW Sections

Make sure that each section of the SOW clearly and completely describes the information requirements or the conditions that are appropriate to that section. The flow chart following shows a step-by-step approach to do this.

Flow Chart

It is best to analyze the format and content in a systematic manner, step-by-step (and section-by-section). The following flow chart shows such a step-by-step-approach.



(continued on next page)

34.2 General Content of a SOW *(continued)*

Step 1
Analyze
Section 1, Scope

The scope section presents a general overview of the objectives and the desired results. A well-written scope is critical because it establishes the parameters or limits of the contractor's efforts. Read this section carefully to make sure that you understand it.

CAUTION
Remember, any work performed outside the parameters established in the scope will constitute changes in scope and require new negotiations on all aspects of cost, price, fee and schedule.

Look for any ambiguity that might lead to "scope creep." For example, in a FIP resource acquisition, if your acquisition strategy calls for infusion of future technology, then the scope should address technology infusion strategy.

Step 2
Analyze
Section 2,
Background

In the background section, you should provide a general description of the technical considerations. Look for any known specific concept, technique, methodology, results of previous related work, and interfaces which may influence the contractor's effort or direction of approach.

Remember, the background describes the relation of the present effort to the major program goals. If you need a very lengthy or extensive background description, then you can make the detailed background into an attachment and reference the attachment in this section.

34.2 General Content of a SOW *(continued)*

Step 3
Analyze
Section 3,
Applicable
Documents

In this section, you should look for mention of all the known documents and referenced material that provide requirements for the contractor to perform. You can include documentation such as specifications, purchase descriptions and the index of applicable standards as appendices. Check to make sure that each applicable standard is accounted for.

For example, this is where you would insert a copy of the *Standards Checklist* taken from the “*Federal ADP and Telecommunications Standards Index*.”

Do NOT include in this section:

- funding documents; and/or
- justifications, or other procurement documents.
- Data Items Descriptions (DIDS);
- DD Form 1423 Contract Data Requirements List (CDRL);

DoD Specific
Requirement

Step 4
Analyze
Section 4, Tasks

In Section 4 of the SOW, you must check all the specific tasks, or steps, that the contractor must perform in order to provide the end item, deliverable or service.

Examples of tasks that you might include in this section of the SOW are: *providing services, security, technical enhancements, maintenance reports, studies, documents, conduct of training, perform tests, install equipment, remove equipment, conduct surveys and analyses, or provide a level of effort, etc.*

Step 5
Analyze
Section 5,
Deliverables

In this section you must check for precise statement of what the contractor is to deliver at specified points in time as work progresses, and a statement of what is to be delivered, to include details concerning the type, form, media, and quantity of the deliverables.

Examples of contract deliverables might include: equipment, levels of security, types of training, models, telecommunications, mock-ups, software, labor hours, manuals, documentation, reports, and other data.

You can refer to specifications in the appendices, CDRLs, and Data Item Descriptions in this section, but these should not be included in their entirety here.

(continued on next page)

34.2 General Content of a SOW *(continued)*

Step 6
Analyze
Section 6,
Government-
Furnished
Facilities and
Services

In this section, you check for a list of all property and services that the Government will make available to a contractor for use during performance of the contract. Look out for promised GFE or property that cannot be provided or might not be provided in a timely manner and might delay performance. Examples include:

office space	reports
test facilities	studies
benchmarking tests data	lodging
office furniture	storage areas for equipment
parking spaces	spare parts
telephones	computer services
copies of regulations	forms
documents	personnel services (such as data entry)

ADP media supplies or Government computers.

CAUTION

The inability to provide Government-furnished equipment on time, in the quantities stated, or expeditiously, as described in this section, is a major source of contractor complaint during contract administration. Ensure that you do not promise in this section to provide anything the Government cannot deliver. Delays in providing equipment can impact the contractor's performance and result in claims against the Government.

34.2 General Content of a SOW (continued)

Step 7
Analyze Section
7, Contractor-
Furnished
Property and
Services

In this section, you will check for the property and services which the contractor shall provide for proper performance of the contract. This must be a complete listing of all such items which you expect the contractor to provide. *If the contract is for software development, address the data rights which the Government is to receive.*

Step 8
Analyze
Section 8,
Acceptance and
Inspection Criteria

In this section, check how each deliverable listed in Section 5 of the SOW is to be received, inspected, tested, or verified by the Contracting Officer's Representative (COR) or the Contracting Officer's Technical Representative (COTR). Explain the time period in which the COR will determine whether or not to accept the deliverable.

Example: *"The Government shall accept or reject a deliverable within 30 days of receipt. The Government shall apply the acceptance testing criteria described in this contract."*

Look for any contractor responsibility for specific testing. For example, *"The Government will conduct acceptance testing in accordance with the test procedures specified in the contract. The contractor shall provide written certification that all software code is complete."* This information is considered specific to the SOW and detailed in Section C of the UCF. However, more general information on acceptance and inspection may be found in Section E.

Step 9
Analyze
Section 9,
Place of Contract
Performance

In this section, check for **where** the work is to be performed or the place of delivery. Look for the name, address, and phone number of the Government point of contact, if Government facilities are to be used, items are to be delivered to the Government. Does the stated place of performance make sense? Will any special arrangements be necessary? For example, will contractor personnel be performing work in a Government facility?

34.2 General Content of a SOW (continued)

Step 10
Analyze
Section 10, Task
Completion Date

In this section, look for the **period of performance** for each deliverable end item or delivery schedule. Is the specific task completion date stated for each deliverable? It is helpful if this data is presented in a table format. If any task completion dates are not clearly stated or were omitted, clarify the dates.

Look for tasks that might be out of sequence. Remember, some tasks cannot be completed until previous tasks are first done. For example, training of Government personnel will normally not be scheduled until a system has been fully installed and passed acceptance testing.

You can also request a schedule summary and attach it as a delivery schedule to the SOW and then reference the schedule in this section.

Remember that the schedule summary is used by the Contracting Officer as an exhibit to the solicitation and will later be incorporated into the body of the contract.

Usually, the delivery schedule should be stated in terms of calendar days after award of the contract.

Example: “...*Sixty days after contract award*....”

However, in some cases, there may be reason to schedule some deliveries by a specific calendar date, such as “...not later than 10:00 AM Eastern Daylight Savings Time, January 31, 199X....”

Step 11
Analyze
Section 11,
Inspection and
Acceptance of
Deliverables

Check for where the deliverable is to be shipped, installed, inspected, tested, accepted, and WHO will receive, test, inspect, or accept it. Note that in most cases, the COTR will be responsible for inspecting and testing, in accordance with a test or acceptance plan, before notifying the Contracting Officer whether an item should be accepted. The acceptance or test plan will explain the procedures for acceptance testing. However, you may give the COTR any necessary special administrative instructions deemed appropriate by the contracting officer.

34.2 General Content of a SOW (continued)

Step 12
Analyze
Section 12,
Security
Requirements

In this section, you must check for any security restraints, national security aspects, or security classifications that impact or are required for the contractor (including subcontractors) in contract performance. You may need assistance from the program technical staff or from security specialists to analyze this section. Ask for help if you need it.

CAUTION
<p>When personal or facility security requirements are necessary in the performance of work, a DD Form 254, Contract Security Classification Specification, should be included.</p>

You should NOT include requirements for computer security in this section. Include such requirements in Sections 4 and 5.

Reference any applicable computer security documents in Section 3 and the detailed specifications for computer security are made a part of the Appendix.

Step 13
Analyze
Section 13,
Appendices

In this step, you should check each appendix to the SOW. This document describes in detail the minimum requirements. Look for a clearly developed appendix for each type of requirement.

For example, there may be a separate appendix for:

- Equipment Specifications;
- Communications Requirements;
- Facilities Requirements;
- Security;
- System Requirements;
- Software Requirements;
- Live Test Requirements; and
- Contract Support Requirements (e.g. maintenance, documentation, manpower skills, training, etc.).

34.3 Importance of a Well-Written Scope Statement

Importance of a Well-Written Scope Statement

It is critical that the scope statement be well-written, thorough, and unambiguous. If there is any ambiguity or lack of clarity in the scope statement, it is almost certain to cause misunderstanding and differences of opinion as to the intended meaning of the contractual document.

There are several dangers when this happens.

1. The Government may not get what it wants. Qualified offerors may not understand what is required and fail to respond properly. Offerors may protest the wording of the scope if it appears to offer unfair advantages to a competitor or otherwise restrict competition.
2. The Government may have to spend considerable time, effort, and expense clarifying the scope. This delays the acquisition.
3. The winning offeror may proceed to furnish a supply or service, based on a faulty understanding of the scope, which can cause later difficulties during contract administration.

For these reasons, it is imperative that the scope of work be well-written.

Examples of Poorly-Written Scope Statements

It is helpful to examine examples of poorly-written SOWs to see how they can be misinterpreted.

The samples on the following pages show extracts from scope statements which are ambiguous, incomplete, misleading or otherwise contain flaws which can lead to misunderstandings.

An improved version of the same scope statement follows each faulty example.

For example, consider the following sample of a scope statement for maintenance services.

34.3 Importance of a Well-Written Scope Statement

Examples of
Poorly-Written
Scope Statements
(continued)

Example 1

Extract From A Poorly-Written Scope Statement

C.3 Scope

“The scope of work is intended to provide two person-years maintenance services for maintenance staffing in support of a Local Area Network (LAN) which must become operational on a 24 hour per day, seven days per week basis, beginning not later than 1 October 1996, and extending for a period of 12 months at the Green Hill computer facility. This will include all tasks normally associated with such maintenance support.”

Improved Version Of Scope Statement

C.3 Scope

“The scope of work is intended to provide two person-years of maintenance services for maintenance staffing in support of a Local Area Network (LAN) which must become operational on a 24 hour per day, seven day per week basis, beginning not later than 1 October 1996, and extending for a period of 12 months at the Green Hill computer facility. Maintenance will include tasks associated with:

- a. Diagnostics and troubleshooting.
- b. Removal of damaged or nonfunctioning components.
- c. Replacement and repair of damaged or nonfunctioning components.
- d. Receipt, inspection, acceptance, and storage of rebuilt components.
- e. System testing.
- f. Recommendations for system maintenance improvements.”

(Example 1 continued on next page)

34.3 Importance of a Well Written Scope Statement *(continued)*

Examples of
Poorly-Written
Scope Statements
(continued)

Example 1 (continued)

You can see that in Example 1, the first extract from the scope statement leaves some room for misunderstanding and ambiguity. It does NOT clearly specify WHAT is to be supplied.

If you were a potential offeror reading this first example, what would you consider to be “all tasks normally associated with such maintenance support?”

Also, note that the improved version specifies the tasks more clearly by listing them. It also clarifies the relative scope by specifying that a total of two man years are required.

Based only on this information, some offerors will be induced to read further, and conclude that an offer may be in their interest. Other offerors, seeing the relatively small size of the effort will be induced to make a “no bid” decision and not waste any time in reading further.

Also, because the WHAT has been clarified in the improved statement, it is easier to understand the relative skill levels to be required of the contractor personnel. “Trouble shooting and diagnostics” are relatively high skill tasks, compared to “receipt...and storage of rebuilt components” (parts), which is more of a clerical requirement.

In this case, the WHAT clarifies the WHO and alerts the offeror that it must provide relatively highly skilled maintenance personnel.

34.3 Importance of a Well Written Scope Statement *(continued)*

Examples of
Poorly-Written
Scope Statements
(continued)

Example 2

Consider the next example. This one is for computer training services.

Extract From A Poorly-Written Scope Statement

C.3 Scope

“The scope of work is intended to obtain computer training services for Government personnel at the Green Hill computer facility in the operation and maintenance of a specialized data base using the commercial HealthMaster software. The data base stores information on all tasks performed by emergency room personnel in hospitals that are members of the national HealthMaster Alert Network (HMAN). The contractor shall provide training in receipt and review of reports, data base entry, printing of reports, and asking reporting hospitals for data clarification.”

Improved Version Of Scope Statement

C.3 Scope

“The scope of work is intended to obtain computer training services for 300 Government personnel at the Green Hill computer facility in the operation and maintenance of a specialized data base which was established and customized from the commercial HealthMaster software. The data base stores information on all tasks performed by emergency room personnel in reporting hospitals that are members of the national HealthMaster Alert Network (HMAN). The training shall include:

- a. Receipt of coded reports.
- b. Review of coded reports for completeness.
- c. Data base entry and access.
- d. Printing summary reports, monthly reports and requests for clarification.
- e. Sending requests for data clarification via modem.
- f. Interpretation of trouble messages and error messages.”

(Example 2 continued on next page)

34.3 Importance of a Well Written Scope Statement *(continued)*

Examples of Poorly-Written Scope Statements (continued)

Example 2 (continued)

In Example 2, you can again see that the level of detail in the improved version provides more detail concerning the WHO, WHAT, WHERE, WHEN, HOW, AND WHY. All of this additional detail is important to the potential offeror who will read the scope looking for details to make a bid or no bid decision.

Note that in this example, there is some ambiguity about the tasks to be performed. Note that the improved version specifies HOW MANY Government persons are to be trained, alerts the reader that a customized version of the data base will be used, and more clearly specifies the general scope of the tasks to be performed (the WHAT and HOW).

Even though this scope statement is to be a general statement, the small amount of added detail does provide the potential offeror much more information about the research to be done.

Reviewing the Scope Statement

The point here is that you should carefully review your scope statement in order to ensure that it is:

- Clear;
 - Complete;
 - Concise;
 - Unambiguous; and
 - Contains sufficient detail to act as the overview of the acquisition.
-

SUMMARY

In this chapter, you learned to analyze a Statement of Work. In the next chapter, you will learn about preparing an acquisition plan.

CHAPTER 35

PREPARATION OF AN ACQUISITION PLAN

Chapter Vignette

“What about the acquisition plan,” asked Mark. “I suppose that requires some special considerations for a FIP resources acquisition.”

“Right you are,” replied Marcia. “Of course, an acquisition plan for FIP resources contains many of the same parts and features similar to other acquisition plans, and the procedures are very similar and equally important. You still need to begin with a well written proposed requirement, do market research, generate a thorough SOW and specifications, and go through a requirements analysis, analyze alternatives, and provide any justifications needed.”

Course Learning Objectives

At the end of this chapter, you will be able to:

Overall:

Prepare an acquisition plan based on the following documents:

- the proposed requirement;
- market survey reports;
- SOW and specifications;
- a requirements analysis, analysis of alternatives, conversion study (if applicable);
- justification documentation; and
- output from BARS or the equivalent.

Individual:

35.1 Gather information for an acquisition plan.

35.2 Develop an acquisition plan.

Chapter Overview

Scope

This chapter discusses how to prepare an acquisition plan, based on the following documents:

- the proposed requirement;
- market survey reports;
- SOW and specifications;
- a requirements analysis, analysis of alternatives, conversion study (if applicable);
- justification documentation; and
- output from BARS or the equivalent.

(Note that this chapter begins the explanation of actions you must take during the Presolicitation/Solicitation phase of an acquisition for a FIP resource acquisition.)

Topics in This Chapter

This chapter includes the following topics:

SECTION	TITLE	PAGE
35.1	The Acquisition Plan: Overview	35-4
35.2	Developing the Acquisition Plan	35-7

References

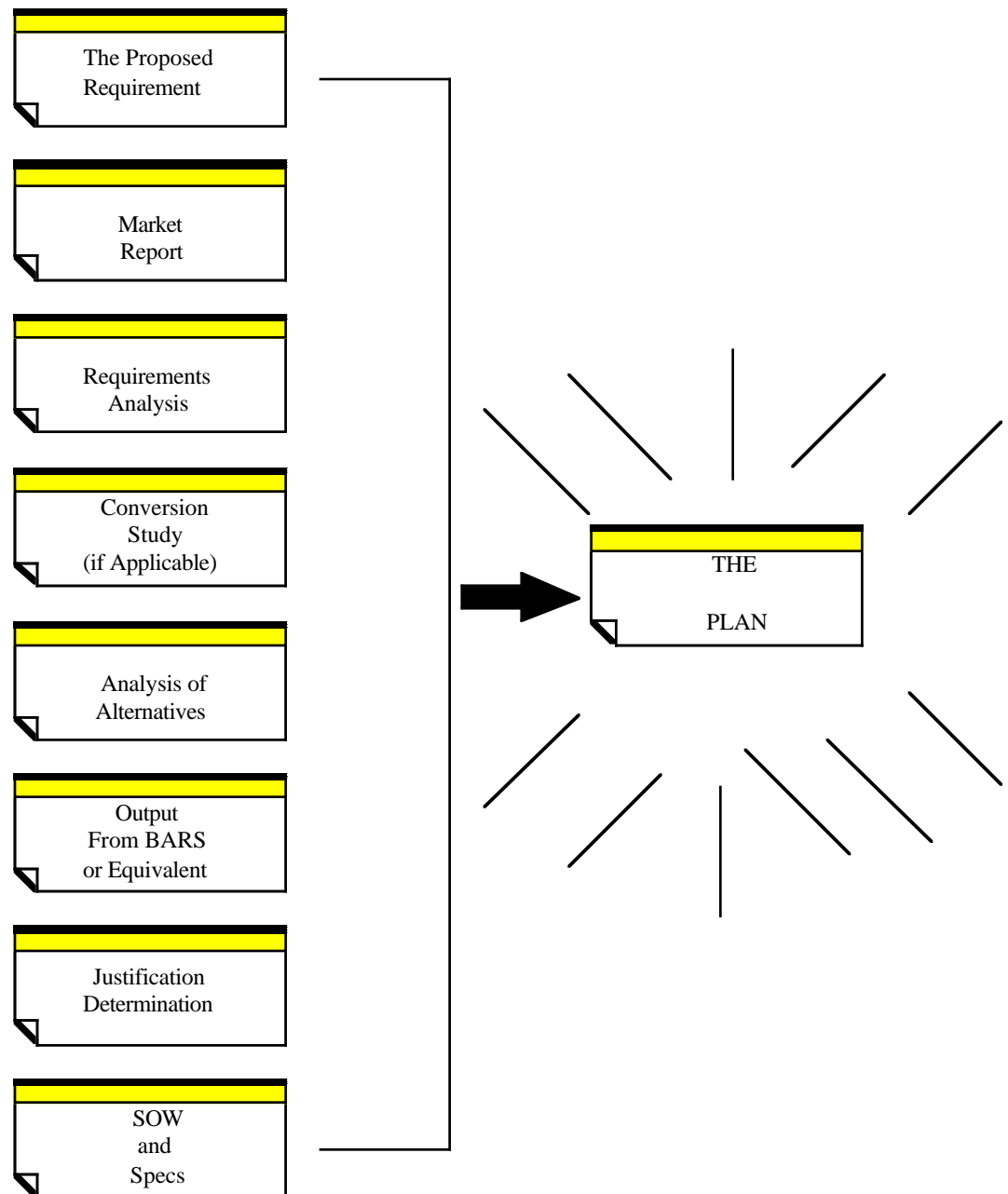
You may need several key references and documents to understand the actions discussed in this chapter. These include:

- FAR Part 7
 - DFARS 207.1
 - FIRMR Bulletins C-5 and C-7
 - DoD Directives 5000.1 and 5000.2
 - OMB Circular A-76
-

35.1 Acquisition Plan: Overview

Introduction

The following illustration shows most of the key documents which normally have the greatest effect on the acquisition plan. You will not be responsible for preparing all these documents, but at this point, you should understand how and why they were developed and their effect on the acquisition plan.



35.1 Acquisition Plan: Overview *(continued)*

The Acquisition Plan

The key document produced in the Presolicitation Phase of the acquisition process is the acquisition plan. In many cases, the acquisition plan will be largely prepared by the requesting agency. As a contract specialist or contracting officer, you may be asked to provide contractual guidance to the technical staff members who develop most of the plan inputs, and you may be required to assist in obtaining FIP support services, such as professional consultants, to assist in developing the acquisition plan.

FAR Part 7

FAR Part 7 also discusses the overall requirement for acquisition planning

If you are concerned that the acquisition plan does NOT satisfy the requirements, you should contact the requiring agency and state your concerns, and provide any recommendations for changes and improvements. In some instances, return the requirements.

DFAR Subpart 207.1 DFAR 207.105

DFAR Subpart 207.1 contains limited information on acquisition plans for DoD-related acquisitions, including contents of written acquisition plans (DFAR 207.105). If you are concerned about “acquisition streamlining” in a DoD procurement, you should also check directives including DoD 5000.2 (*Defense Acquisition Management Policies and Procedures*).

Conformance With Earlier Strategic Planning

FIRMR 201-18.002(d) FIRMR 201-18.001

You will recall that the Paperwork Reduction Reauthorization Act of 1986 and OMB Circular A-130 require executive agencies to develop strategic plans for FIP resources acquisition (see Chapters 1 and 2). The acquisition plan for any FIP resource acquisition should be in conformance with the strategic planning done earlier. Agencies should ensure that “*acquisition of FIP resources is in accordance with the updated 5-year plan*” (FIRMR 201-18.002(d)). You may also recall that the GSA’s Office of Technical Assistance can provide assistance in acquisition planning, on a cost reimbursable basis.

You may be responsible to assemble and review the completed acquisition plan and determine that it is complete and thorough and meets all the requirements for proceeding with the acquisition.

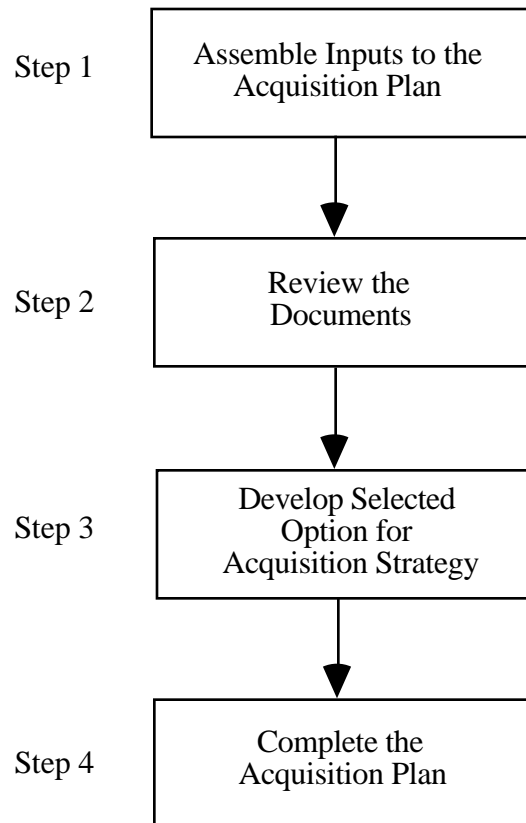
Of course, planning is strongly encouraged for all major acquisitions. The complex nature of many FIP resources acquisitions, such as system integration projects, makes a good acquisition plan essential. The preparation of the acquisition plan begins with the key input documents and ends with the completed, approved acquisition plan. The flow chart on the following page shows the steps required to complete the acquisition plan.

(continued on next page)

35.1 Acquisition Plan: Overview *(continued)*

Flow Chart

The following flow chart shows the actions you should take to complete the acquisition plan for a FIP resource acquisition.



35.2 Developing the Acquisition Plan

Step 1 Assemble Inputs to the Acquisition Plan

The first step is to assemble all the inputs that you will require to finalize the acquisition plan. These inputs will consist of formal documents such as the requirements analysis and analysis of alternatives and informal documents, such as notes from meetings and telephone conversations.

In most cases, you will already be familiar with many or all of these inputs, because you will have seen them earlier in the Acquisition Planning Phase and may even have provided guidance for their completion.

However, if you were only recently assigned to the acquisition team, you may not be familiar with the content of all these input documents, so you must be sure you have assembled them all for review before you finalize the acquisition plan.

FIRMR Bulletin C-5

You may recall that Attachment A to FIRMR Bulletin C-5 provides information on the documents that you may need to complete an agency procurement request (APR). Many of these same documents will be the key inputs to your acquisition plan, so you should assemble and review these documents before trying to complete the acquisition plan. The checklist on the following page may help you assemble the documents that you will need.

Of course, you may not require all of these input documents for every FIP resources acquisition plan. For example, if the acquisition does not concern telecommunications, you can ignore the telecommunications documents in the checklist. Also, if there were no requirement for a conversion study, there won't be one included.

FIRMR 201-20.1

But, you will always have at least the requirements analysis (FIRMR 201-20.1) and the analysis of alternatives (FIRMR 201-20.2) along with some market survey data,

(continued on next page)

35.2 Developing the Acquisition Plan *(continued)*

Checklist

Required?		CHECKLIST OF KEY INPUT DOCUMENTS
Yes	No	
_____	_____	1. Requirements Analysis should outline in detail the exact requirement, refined after market research, and explain the nature, special technical characteristics and quantities required. May include market survey and risk analysis information.
_____	_____	2. Analysis of Alternatives is a detailed examination of the alternatives and tradeoffs for the proposed acquisition, with a conclusion that favors one alternative or option above the others.
_____	_____	3. Determination to support a compatibility-limited requirement - in some cases there will be concern about new FIP resources being able to interface with older FIP resources on hand in the agency. If so, this must have been explained and a determination reached to proceed with a justified, compatibility-limited acquisition.
_____	_____	4. Conversion Study - there may also have been a conversion study, especially if there was any concern about operating older software on newer hardware or new software on older hardware.
_____	_____	5. Certified Data to support a requirement available from only one responsible source, if there was any concern about sole source acquisition.
_____	_____	6. Certified Data to support a requirement using a specific make and model specification.
_____	_____	7. Description of planned actions to foster competition for subsequent acquisitions - in some cases this will be needed to show that the agency is not to be "locked in" to only one OEM or vendor.
_____	_____	8. Justification for more than one agency to provide switching facilities at building locations (if needed for a telecommunications acquisition).
_____	_____	9. Exception to the use of FTS2000 mandatory network services (if needed for a telecommunications acquisition).
_____	_____	10. Exception to the use of GSA local telecommunications service mandatory switching services.
_____	_____	11. Construction information is required if buildings must be constructed or modified by GSA to accommodate the FIP resource. You will need this documentation to determine the true overall cost of the acquisition. It may be necessary to request <i>multiyear contracting authority</i> for telecommunications resources. (FIRMR 201-20.306)
_____	_____	12. Agency or GSA references - any special references such as minutes of meetings, memos of telephone conversations or similar reference materials which might support the rationale for your decisions and recommendations.
_____	_____	13. Any special guidance or authorizations from GSA, the SSA or Trail Boss, or oversight committees - including any special waivers, exceptions or guidance for the acquisition (See FIRMR Bulletin C-7.).

(continued on next page)

35.2 Developing the Acquisition Plan *(continued)*

Step 2 Review the Documents

Once you are sure that you have assembled all the necessary input documents that you will need for the acquisition plan, you should review them carefully for both technical content and internal consistency to support the acquisition strategy that you will incorporate into the plan.

Remember, in most cases, you may already be quite familiar with these documents, unless you have only recently been assigned to the acquisition team. However, it is still important that you review them because a considerable period of time might have elapsed and this may have an effect on the development of your plan.

For example, some of the information in the original requirements analysis may be many months old and no longer be valid, because of changes in technology. Also, some of the market survey data may be obsolete, if it is more than several months old. For these reasons, you should review the input documents for both *technical content* and for *internal consistency*.

Review for Technical Content

You are not expected to be an expert on technical content, such as the suitability of specifications, so you may need to ask for technical assistance in reviewing the *technical content* of the acquisition plan. If possible, you may ask technical experts (other than those who prepared the technical inputs) to review the technical content for accuracy and suitability.

Also, on some complex acquisitions, there may even be outside experts (consultants) brought in to provide a comprehensive final review of the technical content.

Review for Internal Consistency

Even if you require assistance to edit for technical content, you should, at this point, be able to conduct your own edit for the *internal consistency* of the plan. The purpose of this edit will be to ensure that all parts of the plan agree with one another, and that any conclusions or recommendations are supported by the necessary documentation.

For example, if this is to be a “best value” acquisition, there should be clear rationale as to which technical evaluation factors in the source selection plan are the most important, and these should be clearly explained and supported by documentation for a “best value” buy.

(continued on next page)

35.2 Developing the Acquisition Plan *(continued)*

Step 3
Develop Selected
Option for
Acquisition
Strategy

Once you have assembled the key input documents and reviewed them for both technical content and for internal consistency, you are ready to complete development of the plan and to incorporate the acquisition strategy that you need to support that option most likely to attain the acquisition objectives.

You will recall that during the analysis of alternatives, you examined the available alternatives and tradeoffs and documented one alternative as the most favorable option for attaining the acquisition objectives. At this point, you are nearly ready to complete the acquisition plan, based on the alternative that you selected during the analysis of alternatives, modified by any events or guidance that occurred since then.

The specific option that you develop and incorporate into the acquisition plan will come from one of the alternatives you examined earlier during the analysis of alternatives. The specific alternatives will vary, but you probably started with at least the following options:

- *Do nothing* - sometimes the most advantageous course of action may be to NOT proceed with the acquisition, at least not until requirements stabilize or the supporting documentation, such as sole source justification, is more suitable.
- *Share FIP resources from those available within the agency or within the Government.*
- *Transfer FIP resources from those available within the agency or from within the Government.*
- *Acquire from mandatory for use or mandatory for consideration sources*
- *Acquire through contracting in the market place* (using small purchase procedures, sealed bidding, or negotiated procurement techniques, depending on the size and characteristics of the requirements).

The decision table on the following page outlines these five general options and may help you and the requiring activity personnel determine the action you should take in developing the acquisition plan.

(continued on next page)

35.2 Developing the Acquisition Plan *(continued)*

Decision Table

DECISION TABLE FOR DEVELOPING ACQUISITION PLAN	
IF...	THEN...
<ul style="list-style-type: none"> The agency's requirements were subject to sudden or frequent change, or if you concluded that the risks of attaining the acquisition objectives were too high you may have concluded that the most prudent strategy would be to delay the acquisition, or do nothing at this time, or at least until the requirement stabilized and risks were lower... 	<ul style="list-style-type: none"> You may conclude the prudent strategy is to do nothing at this time. Be sure to document your conclusion.
<ul style="list-style-type: none"> The most advantageous alternative was sharing of resources... 	<ul style="list-style-type: none"> Specify the resources to be shared, with milestones, timetables and points of contact.
<ul style="list-style-type: none"> The most advantageous alternative was transfer of resources from within the agency or from within the Government... 	<ul style="list-style-type: none"> Specify the resources to be transferred, milestones, timetables and points of contact.
<ul style="list-style-type: none"> Mandatory for use or mandatory for consideration sources are the most advantageous... 	<ul style="list-style-type: none"> Identify the specific source (Schedules or other) and explain why this is most advantageous.
<ul style="list-style-type: none"> Acquiring through the market place is most advantageous... 	<ul style="list-style-type: none"> Identify and justify the specific method of procurement (small purchase, sealed bidding, or negotiated procurement.)

(continued on next page)

35.2 Developing the Acquisition Plan *(continued)*

Step 4
Complete the
Acquisition Plan

At this point you are finally ready to write the acquisition plan. Much of what you will include in the plan has already been developed earlier by you or by others, but there will still be some original writing you may have to do. For example, you may have to write much of the contract administration plan which will be one enclosure (possibly with the help of the COTR).

Format

FAR 7.105

There is no single format that is used by all agencies, but there are some common features that should go into any comprehensive acquisition plan. The FAR specifies the information necessary for an acquisition plan. If your agency has a preferred format, follow it. The outline below is a guide which you may follow and modify as needed. *You should consider including at least these kinds of information .*

SAMPLE FORMAT OUTLINE FOR ACQUISITION PLAN

1. Acquisition Title/Number/Cost Estimate
2. Brief Description of Statement of Work - if appropriate, also discuss potential risks and problems, issues to be resolved and any recommendations.
3. Review of the Technical/Business Management Evaluation Factors - Describe the factors for ranking proposals and identify whether the award will be made on the basis of "greatest value" or "lowest price/technically acceptable."
4. Review Source Selection Plan - Discuss any potential for multiple award, price-related factors to be evaluated and overall weights assigned to "best value" and price.
5. Recommended Sources - If appropriate, attach list of sources, based on market survey.
6. Competition - Discuss what steps are necessary to increase competition. If the competition is to be sole source or otherwise restricted, describe justification.
7. Business/Economic Development Program - discuss any considerations given to award as a set-aside or any socioeconomic factors considered.
8. Method of Procurement - Discuss method such as sealed bidding or negotiated procurement.
9. Lease vs. Purchase - Discuss the rationale for determining one or both methods.
10. Type of Contract - Discuss the rationale for selection.
11. Government - Furnished Property (GFP) Data - Identify property/data, impact on competition and difference in total cost to the Government with and without GFP.
12. Special Terms and Conditions - Discuss any special clauses such as options or warranties.
13. Contract Administration - Discuss the contract performance monitoring required. Identify (if applicable) the COTR(s). Attach Contract Administration Plan as required.

(continued on next page)

35.2 Developing the Acquisition Plan *(continued)*

Milestone Chart

In addition, you should also attach to the acquisition plan a detailed milestone chart, showing certain key actions, in sequence, and the expected date for their completion. Again, there is no specific format used by all agencies. The milestone chart should show the sequence of major events in the acquisition process, beginning with a statement of requirements and ending with the contract award milestones.

The milestones that you enter will depend on the size and complexity of the acquisition. For example, a complex systems integration project may include several pages of milestones.

Allow for Delays

Note that for each milestone there should be scheduled “begin date” and “planned” and “actual” completion dates. In many acquisitions, there is a high risk that at least one or more of the planned milestone dates will be missed. Normally, missing one or more planned completions will not place the entire acquisition at risk. However, if a missed or “slipped” milestone is critical or does pose some unacceptable risk, you should discuss this risk and the appropriate risk control measures in the acquisition plan.

For example, if you expect that there will be many qualified offerors, for a very complex acquisition, you may have to allow more time for the “evaluation of proposals,” “negotiations” and “BAFO” milestones.

Be careful in entering milestone dates. The milestones must be realistic and you must allow for lead time and delays. Keep in mind that many milestones are dependent on others or cannot be accomplished unless previous milestones are fully completed.

(continued on next page)

35.2 Developing the Acquisition Plan *(continued)*

Size of the Plan	You can see that if you include all the information shown in the sample outline, including the detailed milestone chart and Contract Administration Plan, you will develop a comprehensive acquisition plan of considerable size, possibly running to hundreds of pages for a large acquisition, such as a systems integration buy.
Review of Completed Plan	In order to minimize the possibility of mistakes in such a large document, you should have each member of the acquisition team, including technical and contract office personnel, review the completed document and recommend any necessary changes.
Briefing for SSA	<p>Even after such careful review, the acquisition plan is not completed until approval by the Source Selection Authority (SSA), Trail Boss and/or oversight committee, so you must be ready to rehearse and present a briefing on the acquisition plan to these individuals.</p> <p><i>The purpose of this briefing is to recommend that the SSA, Trail Boss or oversight committee approve the plan so you can continue with the subsequent actions, including publicizing the request for proposals.</i></p>

SUMMARY

In this chapter, you learned to prepare an acquisition plan based on various documents. In the next chapter, you will learn to itemize and apply special and price-related factors in developing an acquisition strategy for FIP resources.

CHAPTER 36

SPECIAL AND PRICE-RELATED FACTORS FOR FIP RESOURCES

Chapter Vignette

“Is there anything special about the price-related factors in a FIP resource acquisition,” asked Mark. “It seems that with all the other special cautions and considerations that you have mentioned, there must be something special about the price-related factors that I should be aware of,” he said.

“To be sure,” Marcia replied. “There are a few special considerations. For example, you have to consider lease vs. purchase prices, finance charges for leasing telecommunications equipment, Government-furnished property costs, options, trade-ins, buy-in pricing and software licenses.”

“Oh, yes,” she continued, “and there is also the matter of economic price adjustments, and you have to consider how many Government personnel will be required.”

Course Learning Objectives

At the end of this chapter, you will be able to:

Overall:

Itemize and apply special factors and cost-related factors in developing an acquisition strategy for FIP resource acquisitions and summarize the price-related factors which must be considered in preparing a FIP resource acquisition plan.

Individual:

36.1 Itemize and apply special factors in developing an acquisition strategy for FIP resource acquisitions, including:

- DPA as a factor
- Software as an impediment to full and open competition for hardware procurement
- Systems life
- Residual value (not currently practiced)
- Availability and suitability of used equipment and/or compatibles
- Potential for a lead agency contract
- Investigation of conversion software alternatives
- If performed by the Government
- Condition of competition
- Examination of obsolete vs. outdated
- Third party procurements
- Maintenance
- Peripherals
- Requirements when bundling occurs

(continued on next page)

Course Learning Objectives *(continued)*

At the end of this chapter, you will be able to:

Individual *(continued)*:

36.2 Summarize the price-related factors which must be considered in preparing a FIP resource acquisition plan:

- Lease vs. purchase price
- Finance charges (for leasing of telecommunications equipment)
- Government-furnished property costs
- Options
- Economic price adjustments
- Maintenance, training, installation, technical manuals, and supplemental supplies
- Power and cooling requirements
- Number of Government support personnel required
- Floor space
- Buy-in pricing
- Software licenses

Chapter Overview

Scope

This chapter explains how you will itemize and apply special factors and price-related factors in a FIP resources acquisition. You will apply these factors while you are developing the overall acquisition strategy, during the Presolicitation phase of the acquisition, during the development of the acquisition plan and after the draft SOW, technical specifications and any necessary justifications have been identified.

You will see that some of these special factors are mostly of a technical nature, and you will be assisted by the technical experts in applying these factors. For example, considerations of obsolescence require expert technical opinion. However, you will have primary responsibility to ensure that these special factors and price-related factors are applied.

Special Factors for Acquisition Strategy

In developing the overall acquisition strategy (which will be documented in the acquisition plan) you may consider any number of special factors, but *you should consider at least the following special factors* which are discussed in this chapter:

- Delegation of Procurement Authority (DPA);
- Software as an impediment to full and open competition for hardware procurements;
- Systems life;
- Residual value (not currently practiced);
- Availability and suitability of used equipment and/or compatibles;
- Potential for lead agency contract;
- Investigation of software conversion alternatives;
- If performed by the Government;
- Condition of competition;
- Examination of obsolete (versus outdated);
- Third party procurements;
- Maintenance;
- Peripherals; and
- Requirements when “bundling” occurs.

(Topic continued on next page)

Chapter Overview *(continued)*

Special Factors for Acquisition Strategy (continued)

You can see that most of these special factors are technical in nature. On the other hand, some special factors do have a more important relation to price, and the agency technical experts will be of limited assistance in analyzing price-related factors. For example, considerations of lease-versus purchase price alternatives are more price-related than technical in nature. Those types of factors will have to be worked out primarily by contracting office personnel, such as yourself.

Price-Related Factors in the Acquisition Plan

The emphasis in this chapter is on the *price-related factors* that you should consider. These price-related factors which you will consider in the development of the acquisition plan include:

- lease versus purchase price;
- finance charges (for leasing telecommunications equipment);
- Government-furnished property costs;
- options;
- economic price adjustments;
- maintenance, training, installation, technical manuals, and supplemental supplies;
- power and cooling requirements;
- number/type of Government support personnel required
- floor space;
- trade-in of excess equipment;
- buy-in pricing and
- software licenses.

You can see that many of these price-related special factors will require some technical input, but their greatest importance is their impact on the cost of the acquisition. You can use the checklists at the end of this chapter to make sure you do not overlook these factors.

(continued on next page)

Chapter Overview *(continued)*Topics in This
Chapter

This chapter includes the following topics:

SECTION	TITLE	PAGE
36.1	Special Factors to Consider in Developing a Strategy for FIP Resource Acquisition	36-7
36.2	Price-Related Factors to Consider in a FIP Resources Acquisition Plan	36-20

References

You may need several of the following key references to perform the procedures discussed in this chapter:

- FIRM 201-4.001, 201-17.001, 201-20.103-4, 201-20.304, 201-20.305, 201-21.501, 201-39.1402-1, 201-39.1501-1, 201-21.501
 - FIRM Bulletins C-2, C-5, C-7, C-12, C-14, C-27, C-29
 - OMB Circulars A-76, A-94
 - FAR Parts 6, 7.401
-

36.1 Special Factors to Consider in Developing a Strategy for FIP Resource Acquisition

Acquisition Strategy

Whenever you set about to acquire any commodity, you should develop an **acquisition strategy**. This is also true for acquiring FIP resources. However, in acquiring FIP resources, there are some special factors which you must consider.

Considering Special Factors

Here are some special factors which you must consider when you develop a strategy for a FIP resources acquisition.

- DPA as a factor;
 - Software as an impediment to full and open competition for hardware procurement;
 - Systems life;
 - Residual value (not currently practiced);
 - Availability and suitability of used equipment and/or compatibles;
 - Potential for a lead agency contract;
 - Investigation of conversion software alternatives;
 - If performed by the Government;
 - Condition of competition;
 - Examination of obsolete vs. outdated;
 - Third party procurements;
 - Maintenance;
 - Peripherals; and
 - Requirements when bundling occurs.
-

(continued on next page)

36.1 Special Factors to Consider in Developing a Strategy for FIP Resource Acquisition *(continued)*

DPA as a Special Factor

The first special factor that you should normally consider in developing the acquisition strategy is whether the GSA has granted a DPA to the agency. You will recall that the GSA has exclusive procurement authority for the procurement of FIP resources, but can delegate procurement authority to other agencies. This delegation of procurement authority can be either:

- regulatory (usually for purchases below a \$2,500,000 ceiling); OR
- specific to an agency; OR
- specific to a certain FIP acquisition.

If your agency already has a regulatory delegation of procurement authority, then your acquisition strategy does not have to include the GSA, because you will be proceeding on your own. Therefore, you should ask, *“Is this acquisition already covered under an existing DPA?”*

Determining Whether to Submit an APR

FIRMR Bulletin C-5

However, if your agency does NOT have a regulatory DPA AND the acquisition is for an amount greater than \$20,000,000/\$10,000,000/\$5,000,000 based on an agency’s IT budget (or greater than \$2,000,000/\$1,000,000/\$500,000, based on an agency’s IT budget) for other than full and open competition) for other than full and open competition, then you must decide whether to obtain a DPA from the GSA for the specific acquisition. You will do this by submitting an Agency Procurement Request (APR) to the GSA.

Do not make this decision to submit an APR and obtain a DPA lightly. You will have to submit complete documentation with the APR to justify your rationale for requesting the DPA. Usually, you will request a DPA when the acquisition is expected to be highly specialized and when your agency is convinced that it can manage the difficulties of the acquisition. In some cases, your agency will have a “Trail Boss” appointed to manage such a large scale or complex system acquisition.

(Note, for a more detailed discussion of DPA, see Chapter 37 - “Preparing an APR for a DPA.”)

(continued on next page)

36.1 Special Factors to Consider in Developing a Strategy for FIP Resource Acquisition *(continued)*

Software as an
Impediment to
Full and Open
Competition

A second special factor that you might consider in developing the acquisition strategy is whether software will be an impediment to full and open competition in the hardware procurement. Of course, if software plays no role in the acquisition, then this is not a factor.

However, if the acquisition will include both software and hardware, then you may have a problem. Some hardware may operate only with certain proprietary software. Other manufacturers' software (although cheaper) may not operate on the hardware. Also, software authors prefer to lease or license their software, rather than sell it outright. You might also have a high cost associated with conversion of files to the new software.

This means that if you plan to acquire new hardware, you may not have a free hand to acquire the most suitable or cheapest software, but may be tied to certain software, thus restricting free and open competition. In an extreme case, the software you require may even determine the hardware that you have to buy. In any case, you must determine whether software will impede free and open competition and prevent you from selecting the most advantageous alternative. Therefore, you might ask questions such as, *"What effect will the software requirements have on full and open competition?"*

(For a more detailed discussion of commercial software, see Chapter 34, "Acquiring Commercial Software.")

System Life

A third special factor you may consider in developing the acquisition strategy is the system life. You will recall that Chapter 5, "The System Life Cycle," discussed the concept of system life.

FIRMR 201-4.001

Recall that FIRMR 201-4.001 defined system life as *"a projection of the time period that begins with the installation of the FIP resource and ends when the agency's need for that resource has terminated."*

If you are acquiring a system which is expected to have a long life cycle, you may require significant costs for maintenance, training and upgrades, and eventually, for disposal (scrapping).

(Topic continued on next page)

36.1 Special Factors to Consider in Developing a Strategy for FIP Resource Acquisition *(continued)*

System Life
(continued)

FIRMR 201-39.501-3

On the other hand, if you only expect to have the FIP resources for a few years, your expected costs for maintenance, upgrades and training may be very low. In any case, you should ask and answer questions such as “*How long do we expect to use this resource?*,” and “*Have we estimated life cycle impacts and costs?*” You should then calculate these costs as accurately as possible, based on the number of years or months that you expect to retain the system. Later, you must mention the system life when publicizing the intent to place an order (FIRMR 201-39.501-3). For more information on system life, see Chapter 5, “The System Life Cycle.”

Residual Value

A fourth special factor that you might consider in developing the acquisition strategy is the *residual value*. Residual value means the estimated value of a product (such as a FIP resource) to the Government, at the end of the system life. Some FIP resources may have considerable residual value when the agency no longer requires them. Other FIP resources may have little or no residual value remaining beyond scrap value.

For most commodities, you will normally consider residual value in determining the acquisition strategy. However, in preparing your acquisition strategy for a FIP resource, it may be difficult to estimate the residual value of a FIP resource at the end of an 8 or 10 year useful life cycle.

FAR 7.401

For example, it may be very hard to calculate the residual value of a main frame computer system after 10 years, because the technology is advancing so rapidly, you might not be able to estimate what the market might pay for the system at that time. Therefore, you should be careful about overestimating residual value for a FIP resource. You might do this if you overestimated salvage value at time of salvage or disposal (FAR 7.401). In developing the acquisition strategy, therefore, most agencies do NOT estimate residual value because the residual value is offset by the disposal costs.

(continued on next page)

36.1 Special Factors to Consider in Developing a Strategy for FIP Resource Acquisition *(continued)*

Consider Reuse

Even if there may not be much residual value, it may still be possible to continue reusing the FIP resource in another agency, so you should consider reuse, rather than residual value.

(Note - see Chapter 28, “Benefit-Cost and Present Value Analysis,” for information on present value analysis.)

Availability and Suitability of Used Equipment

Another special factor that you will consider in the acquisition strategy is the availability and suitability of used equipment. In some cases, you may find that the FIP resources required by an agency do NOT have to be acquired as new equipment. The requiring activity may be able to reuse equipment that is surplus to another activity within the agency or even elsewhere within the Federal Government. Or, you may be able to acquire used equipment in the market place, possibly at a lower price.

DoD Manual 7950.1-M

First, you should check within your own agency to determine whether there is surplus equipment that can satisfy all or part of the requirement. For example, the Department of Labor frequently reassigns older FIP resources to Job Corps training centers, rather than procure new equipment for the centers. DoD activities are required to follow the procedures specified in DoD 7950.1-M, Defense Automation Resources Management Manual, published by the Defense Automation Resources Information Center (DARIC). The DARIC bulletin board number is 1-800-637-6674.

Then, you can contact the GSA to determine if any other agency has reported equipment as surplus. Surplus equipment can be transferred to your agency at far less cost than acquisition of new equipment.

FIRMR Bulletins C-2, C-27, and C-29
--

You should proceed with acquisition of new equipment only after you have determined that there is no surplus to satisfy the requirement either within the agency or within other agencies. (See FIRMR Bulletins C-2, C-27, and C-29.)

In any case, you should ask the question “*Can this requirement be satisfied with used equipment?*”

(continued on next page)

36.1 Special Factors to Consider in Developing a Strategy for FIP Resource Acquisition *(continued)*

Potential for a
Lead Agency
Contract

In some cases, more than one Government agency may have an interest in acquiring a FIP resource. You should investigate the potential for a “lead agency” contract. For example, two or more agencies may have an identical requirement for FIP resources. In such a case, it does not make good sense to duplicate the acquisition.

Rather, one of the agencies, usually the one with the larger requirement, or an existing DPA, may be able to act as the lead agency in the acquisition. This means that one agency will have the primary responsibility for managing the acquisition. Of course, the other agency may furnish personnel to assist in all aspects of the presolicitation such as selection of specifications and writing the statement of work, and serving as evaluators.

You should therefore also ask “*Is there a potential for a lead agency contract in this acquisition?*”

Investigation of
Software
Conversion
Alternatives

If the acquisition concerns software, you should check to ensure that the technical personnel have investigated the alternatives for conversion of software. In some cases, an agency may have very large computer software files which will require conversion if new hardware or software is acquired. Depending on the size and complexity of the conversion effort, this can be a considerable cost and it must be identified and considered. Usually this will already be done in a conversion study.

FIRMR 201-20.203-4

FIRMR 201-20.203-4 provides guidance on conversion. It requires that when agencies determine conversion costs they must include any cost of conversion that can be stated in dollars. It also advises that “*When evaluating alternatives, it is important for the Government to consider its investments in FIP resources that may have to be converted, replaced or disposed of, as a result of the alternative selected.*”

(Topic continued on next page)

36.1 Special Factors to Consider in Developing a Strategy for FIP Resource Acquisition *(continued)*

Investigation of
Software
Conversion
Alternatives
(continued)

For example, an agency may determine that it only has to convert a very small percentage of its files if it acquires one type of software, but will have to convert a much greater percentage of its files if it acquires another type of software. In some cases, the cost of conversion may be so great that this factor will influence the selection of the software to be acquired. At a minimum, you should ask, “*What are the costs of software conversion?*”

FIRMR 201-39.1501-1

However, FIRMR 201-39.1501-1 cautions that when calculating the costs of conversion, you SHALL NOT include costs associated with the following:

- conversion of existing software and data bases that are to be redesigned, regardless of whether or not augmentation or FIP replacement resources are acquired;
- Purging duplicate or obsolete software, data bases and files;
- Development of documentation for existing application software; and
- Improvements in management and operating procedures;

(See Chapter 25, “Determining If Conversion Studies Are Necessary.”)

FIRMR
Bulletin C-14

You should also check Bulletin C-14. It discusses conversion of FIP resources, including *allowable conversion costs*, which might otherwise be overlooked, such as:

- Firmware required solely to permit the continued use of application software;
- Site preparation and modifications to installed environmental controls;
- Parallel operation of the old system during the conversion process, including off-site data processing support;
- Travel and training expenses, including pay and fringe benefits of Government employees during attendance at formal classroom training classes;
- Existing Software written in Federal standard or other ANSI standard higher-level language;

(Topic continued on next page)

36.1 Special Factors to Consider in Developing a Strategy for FIP Resource Acquisition *(continued)*

FIRMR
Bulletin C-14
(continued)

-
- Application software written in assembly or other nonstandard languages that will continue to meet essential agency mission needs without redesign;
 - Mission essential application software to be developed for operational use before the augmentation or replacement of FIP equipment and operating system software is installed (or before commercial FIP services are acquired); and
 - Conversion of data bases, data base design changes, and data base management systems (DBMS) to the extent necessary to permit the continued use of existing application software.

(Note - for more information on conversion, see Chapter 25 - "Determining if Conversion Studies are Necessary.")

If Performed by
the Government

In some cases, it may be the intention of the requiring agency to perform the software conversion or other acquisition tasks using only Government personnel, such as in-house programmers or systems analysts.

For example, the agency may have a large number of sensitive files or records that should only be handled by Government personnel for security reasons, or the agency may feel that the conversion costs will be done more cheaply in-house. If so, this intent must be clearly stated and understood to be part of the acquisition strategy. It will have an impact on the use of Government personnel and overall costs. You must consider all Government personnel costs, such as travel, training, pay and fringe benefits.

(continued on next page)

36.1 Special Factors to Consider in Developing a Strategy for FIP Resource Acquisition *(continued)*

Extent of Competition

FIRMR 201-17.001(g) & 201-20.103-3(c) & 201-39.6 FAR Part 6

Another special factor you should consider in the acquisition strategy is the extent of competition. FIRMR 201-17.001(g) states that a predominant consideration is to “achieve full and open competition to the maximum extent practicable.” Of course, in any acquisition, you should attempt to maximize competition. FIRMR 201-20.103-3(c) advises that you can do this by describing requirements in a manner that will attain full and open competition, unless other than full and open competition is justified in accordance with FIRMR 201-39.6 and FAR Part 6.

However, in some FIP resources acquisitions (especially for software), you may find in your market research that the competition may be limited. The level of competition that you expect will influence your acquisition strategy. For example, if an agency has a strong requirement for a “compatibility-limited” item, that may severely restrict the amount of competition, and require you to be more aggressive in negotiating a lower price that is favorable to the Government.

FIRMR 201-39.601

FIRMR 201-39.601 provides policy on competition requirements and cautions that an acquisition that uses a specific make and model specification must be justified, with certain exceptions for use of GSA mandatory schedules.

Therefore, in developing the acquisition strategy, you should ask questions such as, “*What competition is expected in this acquisition?*”

(continued on next page)

36.1 Special Factors to Consider in Developing a Strategy for FIP Resource Acquisition *(continued)*

Examination of
Obsolescence

FIRMR 201-4.001

Another special factor that you should consider is whether the agency has considered obsolescence. You will recall that FIRMR 201-4.001 defines obsolescence as, *“the state of FIP hardware or software that is either in a degenerative condition which, if not corrected, will render the resource useless, or becoming technologically outmoded compared to other hardware or software being sold.”*

FIRMR 201-20.203-5

Recall that FIRMR 201-20.203-5 requires that, as part of the analysis of alternatives, the agencies “shall determine strategies for maintaining up-to-date FIP resources and avoiding outdated FIP resources over the system life.”

FIRMR 201-22.303

If the resource will soon be obsolete, you might expect to negotiate a lower price with the offeror(s), or expect to obtain other favorable terms for the Government, as part of your acquisition strategy. However, if the FIP resource will no longer be supported or soon go out of production, this could affect the life cycle costs of supporting the hardware or software over a number of years. FIRMR 201-22.303 states that when the cost of operating existing outdated resources is greater than the cost of acquiring and operating technologically newer resources, agencies shall replace the existing outdated resources. This may require a careful analysis of relative costs. In any case, you should ask *“How soon will this FIP resource be obsolete?”*

For more information on obsolescence, see Chapter 18, “Obsolescence in the Market Place.”

Third Party
Procurements

Another factor to consider is the possibility of third party procurements. For example, just because you acquire a computer system from an OEM does not necessarily mean that you must also acquire the maintenance services from that same manufacturer. In fact, it may be more advantageous to acquire such FIP support services from a third party vendor, such as a company that specializes in maintenance.

Third party vendors may offer certain advantages, such as competitive prices. At the least, you should consider whether a third party source may be available and more advantageous. If so, you might make it part of your acquisition strategy.

You should ask, *“Would a third party procurement offer advantages?”*

(continued on next page)

36.1 Special Factors to Consider in Developing a Strategy for FIP Resource Acquisition *(continued)*

Maintenance

One special factor that is often overlooked in developing the acquisition strategy is the requirement for maintenance, which is a special FIP support service and part of the system life cycle consideration. Remember, a FIP resource may be in service for eight years or longer. This can lead to a substantial requirement for maintenance and the maintenance costs can become an increasingly greater overall part of the total acquisition cost.

You should therefore ask questions such as:

1. *“What are the expected maintenance requirements?”* (What maintenance will be performed by the Government and what will be done by contractors?)
2. *“Who will do the maintenance?”* (Government employees may require training to perform the maintenance, leading to increased training costs), and
3. *“How long do we expect to keep this item?”* (The longer you retain a FIP resource, the greater the overall maintenance costs.)

Originally, maintenance was only offered by the original equipment manufacturers (OEMs), who usually offered a “package deal” which included maintenance and warranty as part of acquisition costs, but now you may be able to obtain FIP resource maintenance at lower prices and more advantageous terms from third party vendors. However, make sure that third party maintenance will not violate OEM warranties.

(For more information on maintenance, see Chapter 9, “Acquiring FIP Maintenance Services.”)

(continued on next page)

36.1 Special Factors to Consider in Developing a Strategy for FIP Resource Acquisition *(continued)*

Peripherals

Another special factor to consider is the issue of peripherals. Peripherals are those hardware components of a system, such as printers, scanners, and related input and output devices, other than a central computer. In many cases, it may be cheaper or more advantageous to obtain peripherals from other sources, rather than obtaining them as part of a new system acquisition.

For example, suppose an agency requires a large scale computer system with a large computer and many printers and scanners. It may be more advantageous to obtain only the computer as a new acquisition, and to acquire the peripherals (printers and scanners) from the GSA's multiple awards schedule (MAS) where the prices are probably lower than the agency could negotiate separately.

Therefore, you should ask questions such as *“What peripherals are needed?”* and *“Can these peripherals be obtained elsewhere more cheaply?”*

Requirements When Bundling Occurs

Finally, another special factor that you should consider in developing the acquisition strategy is whether or not “bundling” will occur. Bundling is the practice of offering hardware and software bundled or sold as a package. The vendor will often offer a very attractive price as an inducement for the bundle, lower than the combined separate costs of the hardware and software if purchased separately.

However, the problem with bundling is that it may tie the Government to specific software which may not be the most advantageous in the long run. For this reason, it is usually against the Government's best interests to accept bundling as part of the acquisition strategy. If you do not accept bundling, then this should be clearly stated in the acquisition plan.

Summary Checklist

You can use the checklist for special factors on the following page to summarize the cost-related factors and the types of questions that you should ask.

36.1 Special Factors to Consider in Developing a Strategy for FIP Resource Acquisition *(continued)*

SUMMARY CHECKLIST FOR SPECIAL FACTORS IN ACQUISITION PLANNING

	Yes	No	N/A	Comments
1. Is this acquisition already covered by a DPA?				
2. Will the software requirements have an impediment to full and open competition for hardware procurement?				
3. Have you estimated life cycle impacts and costs?				
4. Have you calculated residual value (not currently practiced)?				
5. Is there suitable used and/or compatible equipment available?				
6. Is there a potential for a lead agency contract?				
7. Have software conversion alternatives been investigated?				
8. Has conversion of software to be performed by the Government been proposed?				
9. Are the conditions of competition fully understood?				
10. Have the issues of obsolescence been addressed?				
11. Will there be a third party procurement?				
12. Are maintenance requirements fully understood?				
13. Are requirements for peripherals fully understood?				
14. Are requirements for bundling fully expressed?				

36.2 Price-Related Factors to Consider in a FIP Resource Acquisition Plan

Price-Related Factors to Consider

In addition to the special factors mentioned above, which you will consider in the acquisition strategy, there are some price-related factors which you must also consider when you prepare the acquisition plan for FIP resources. These are called price-related factors because they can have a significant impact on the price of the acquisition.

These price-related factors are:

- Lease vs. purchase price;
 - Finance charges (for leasing of telecommunications equipment);
 - Government-furnished property costs;
 - Options;
 - Economic price adjustments;
 - Maintenance, training, installation, technical manuals, and supplemental supplies;
 - Power and cooling requirements;
 - Number of Government support personnel required;
 - Floor space;
 - Buy-in pricing; and
 - Software licenses.
-

Lease vs. Purchase Price

One price-related factor that you must always consider in the FIP resource acquisition plan is the relative advantage of leasing versus purchasing. It may often be in the Government's interest to lease rather than purchase a FIP resource. To make a lease versus purchase decision, you will follow much the same process as in the lease vs. purchase analysis for any other commodity.

FAR Subpart 7.4 OMB Circular A-94

Follow the guidance in FAR Subpart 7.4 and OMB Circular A-94, Section 13.c to determine the least expensive alternative for the Government.

You should base the decision on whether to lease or purchase on a case-by-case evaluation of comparative costs and related factors.

(continued on next page)

36.2 Price-Related Factors to Consider in a FIP Resource Acquisition Plan

(continued)

Lease vs.
Purchase
Minimum Factors
to Consider

FAR 7.401

At a minimum, you should consider the following factors in your lease vs. purchase analysis (FAR 7.401):

- estimated length of time the FIP resource will be used and the extent of use within that period;
 - financial and operating advantages of alternative types and makes of FIP resources;
 - cumulative rental payments for the estimated period of use;
 - net purchase price;
 - transportation and installation costs;
 - maintenance and other service costs;
 - potential obsolescence of the FIP resource because of imminent technological improvements
-

Possible Added
Factors to
Consider

In addition to the minimum factors already discussed, depending on the type, cost, complexity and estimated period of FIP resource use, *you might also want to consider the following added factors in your lease vs. purchase analysis:*

- availability of purchase options (such as lease with option to purchase—may not be offered);
 - potential for use of FIP resource by other agencies after use by the acquiring agency has ended (reuse);
 - trade-in or salvage value; and
 - availability of servicing capability (e.g., can the FIP resource be serviced by the Government or other sources if purchased?)
-

(continued on next page)

36.2 Price-Related Factors to Consider in a FIP Resource Acquisition Plan

(continued)

General Preferences

FAR 7.402

Although you should make a lease vs. purchase analysis on a case-by-case bases for each FIP resource acquisition, FAR 7.402 provides some guidance on general preferences:

- Purchase is generally appropriate *if the FIP resource will be used beyond the point in time when cumulative leasing costs will exceed purchase costs.* (Do NOT rule out purchase merely because technical advances might make the FIP resource less desirable).
- Lease is generally appropriate *if it is to the Government's advantage.* Lease may also serve as an *interim measure* when circumstances require *immediate* use of equipment to meet Government goals, but do not currently support acquisition by purchase.
- If a lease is justified, a lease with option to purchase (LWOP) is generally preferable.
- Generally, long-term leases should be avoided, but may be appropriate if an option to purchase or other favorable terms are included.

See Chapter 29, "Lease versus Purchase of FIP Resources."

Assistance on Lease vs. Purchase

FAR 7.403

If you need assistance in making a lease vs. purchase determination, the GSA can assist you. (See FAR 7.403.)

(continued on next page)

36.2 Price-Related Factors to Consider in a FIP Resource Acquisition Plan

(continued)

OMB Guidelines
for Lease vs.
Purchase

OMB Circular A-94

In addition to the FAR guidance, OMB Circular A-94, *Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs* provides additional guidance. You should use A-94 guidance when BOTH of the following tests of applicability in the following table are met.

TWO TESTS OF APPLICABILITY FOR LEASE vs. PURCHASE	
Apply OMB A-94 Guidelines When	
1.	<p>The lease-purchase analysis concerns a capital asset including durable goods, equipment, buildings, facilities, installations, or land which:</p> <ul style="list-style-type: none"> -is leased to the Government for a term of 3 or more years; OR... -is new, with an economic life of less than 3 years and leased to the Government for a term of 75% or more of the economic life of the asset; OR... -is built for the express purpose of being leased to the Government; OR... -is leased to the Government and clearly has no alternative commercial use (e.g., a special purpose Government installation; <p>AND...</p>
2.	<p>Your lease-purchase analysis concerns a capital asset or a group of related assets whose total fair market value EXCEEDS \$1 MILLION.</p>

(continued on next page)

36.2 Price-Related Factors to Consider in a FIP Resource Acquisition Plan

(continued)

Finance Charges (for Leasing of Telecom- munications Equipment)

Leasing of telecommunications equipment is a very special case. The manufacturers of most telecommunications equipment prefer to lease, rather than sell many telecommunications equipment items because sale is not practical. Telecommunications equipment is really part of a very large network which is shared by many users, so many items of equipment that connect to the system are normally leased, rather than sold outright.

Therefore, if the acquisition concerns telecommunications, one of the special price-related factors that you must consider is the finance charges for leasing of telecommunications equipment. You should ask *“What will the finance charges be for leasing this telecommunications equipment?”* Generally, the longer the leasing period, the more favorable the rates.

Government- Furnished Property Costs

Government-furnished property costs are another price-related factor to consider in the acquisition plan. In many cases, the Government may offer to furnish the use of property as a part of the acquisition. In fact the installation and maintenance of the FIP resource may require long term use of Government furnished property by the vendor. The costs of this property may need to be factored into the overall acquisition plan and acquisition costs.

For example, the Government may provide maintenance work space, office equipment, telephone access, heating and air conditioning, and parts storage facilities to a contractor as part of an acquisition. The costs of this Government-furnished property must be identified and factored in to the acquisition cost. In some cases, it may be possible to negotiate and obtain a lower cost by offering such Government-furnished property as part of the acquisition strategy.

Options

FIRMR 201-39.5202-4

Options are another price-related factor that you may consider in the acquisition plan. FIRMR 201-39.5202-4 provides guidance on the evaluation of options. Because of the rate of technological advance and competition, it may be advantageous to ask for various options as part of the acquisition plan. Where options are to be considered, remember that the Government is not obligated to exercise any or all options. However, you should determine whether options should be part of the acquisition strategy and plan.

(continued on next page)

36.2 Price-Related Factors to Consider in a FIP Resource Acquisition Plan

(continued)

Economic Price Adjustments

An economic price adjustment is an adjustment to the price based on expected inflation or deflation. When estimating the expected price for a multiyear acquisition, make sure that you perform economic price adjustments to the base year for which prices are well known. For example, if you are procuring maintenance services over a three year period, you must calculate the maintenance prices three years into the future, starting with a known baseline of present maintenance service prices.

(See Chapter 28, “Benefit-Cost and Present Value Analysis.”)

Maintenance, Training, Installation, Technical Manuals, and Supplemental Supplies

One price-related factor which is sometimes not fully considered is the cost associated with activities such as *maintenance, installation, technical manuals and acquisition of supplemental supplies*.

As a rule, the longer the agency retains a FIP resource, the greater the costs for *maintenance*. Over time, excessive maintenance costs can even influence the decision to scrap an older resource and acquire a newer one. You should try to estimate the predicted costs for maintenance as accurately as possible. The maintenance costs will include both parts and labor. If the maintenance is to be done by Government personnel, there may be a hidden training cost, because Government personnel may require extensive training, either at the manufacturer’s facility or on-site.

Training costs, both for operation and maintenance, are another price-related factor which are easy to overlook. For example, there is often a training requirement when new software is introduced. During the training period, there may also be a loss of operational efficiency while Government personnel are learning to use the new software or hardware.

Installation is another price-related factor to consider. Often, installation and testing of new FIP hardware or software may cause some shutdown or delays in normal operation. This should be considered as a price-related factor.

(Topic continued on next page)

36.2 Price-Related Factors to Consider in a FIP Resource Acquisition Plan

(continued)

Maintenance,
Training,
Installation,
Technical
Manuals, and
Supplemental
Supplies
(continued)

Technical manuals (for operation and maintenance) are another price-related factor that represent a considerable cost. Usually, the offeror will provide “off-the-shelf” technical manuals. These are the cheapest, because there is no further development cost. However, for DOD acquisitions, the standards and Data Item Descriptions (DIDs) for technical manuals can be very stringent. DOD technical manuals and job aids must usually be tested and “validated” on a target audience of 30 or more persons with a statistical sample of 80% successfully performing the tasks described in the technical manuals without coaching. A requirement for validated manuals can lead to a considerable increase in cost.

For example, a contractor may have to spend months validating such manuals with a group of thirty or more members of the target audience provided by the Government. Therefore, you should ask if there will be a requirement for *validated* manuals, or manuals to be done to special specifications.

Supplemental supplies can be another factor which raises costs. Supplemental supplies are those consumable supplies, such as printer cartridges, paper and other consumable, which are needed for operation and maintenance. Supplemental supplies may be offered as part of the contractor’s maintenance effort. When this occurs, the contractor may charge an added overhead for acquisition and storage of these supplies, before reselling them to the Government. These supplemental supplies usually have a low per unit cost, but if used in large numbers, the annual cost can be considerable. Check to make sure that you are not acquiring supplemental supplies which might be procured more cheaply against the GSA schedules.

Therefore, you should ask questions such as, “*What impact will maintenance, training, installation, technical manuals and supplemental supplies have on the acquisition?*”

(continued on next page)

36.2 Price-Related Factors to Consider in a FIP Resource Acquisition Plan

(continued)

Power and Cooling Requirements

The installation of a new system, especially a large mainframe or supercomputer system, may require special power and cooling. In some cases, the installation will require significant and costly upgrades to the physical facility, or movement to another facility (such as another building). For example, large main frames and supercomputers will almost certainly require at least a special cooling system and some type of auxiliary power. These price-related factors must therefore be considered in the acquisition plan.

You should ask “*Will it be necessary to make any changes to power and cooling to accommodate the new FIP resource?*”

Number of Government Support Personnel Required

Another price-related factor that you should consider in the acquisition plan is the number of Government support personnel that will be required to support the acquisition and administration of the contract. It is easy to overlook the true requirements for the total number of Government personnel that may be required.

For example, assume you are acquiring a maintenance support service for several different sites from the same contractor. In this type of contract, the contractor submits requests for payment based on the number and frequency of visits to the different Government facilities in order to repair equipment in response to requests for maintenance. In this type of situation, it may be necessary to appoint several persons (points of contact) at the different Government sites to confirm requests for maintenance, monitor contractor performance, and confirm that the contractor actually showed up to perform the requested maintenance.

A second example: if you are installing a LAN for the first time, you will almost certainly have to have a Government person full-or part time to administer the LAN. That is a price-related factor to consider in the acquisition plan.

(Topic continued on next page)

36.2 Price-Related Factors to Consider in a FIP Resource Acquisition Plan

(continued)

Number of
Government
Support Personnel
Required
(continued)

Another example is the sometimes hidden requirement to provide Government personnel to validate and verify the accuracy of the operator and maintenance manuals. If required by the Government (as in many DOD acquisitions), this can require up to 30 Government personnel for weeks at a time. If these requirements for Government personnel are not considered, the real costs are underestimated in the acquisition plan.

In the acquisition planning for this type of contract, you should consider *what duties these individuals will be required to perform, how many Government persons will be required at each Government site, how much time (labor hours per month) they will spend monitoring the contractors and the hourly cost for doing so.* The designated COTR should be able to calculate this information and provide it to you.

Floor Space

Another price-related factor that you may have to consider in the acquisition planning is the requirement for floor space. In many acquisitions, this may not seem to be a factor, because the items to be procured (such as replacement desktop computers) are of the same size or dimensions as the equipment to be replaced. However, you should not overlook the space requirements imposed by the procurement, especially if there is to be any new equipment, such as scanners or LAN servers, that were not on hand before.

Procurement of very large computer systems and main frame computers or supercomputers often impose special floor space requirements that you must consider. For example, large mainframes may require special isolation and shielding, which can add greatly to the total floor space requirements. Some large mainframe computers require special cables and connectors that are mounted under a “false floor.” Some super-computers are now liquid-cooled and require considerable space just for the coolant to circulate. Any such requirements can add considerably to the cost of acquisition, such as alterations to the floor space, relocating personnel, and installation of walls. *Be sure to ask if the total floor space requirements have been considered.*

(continued on next page)

36.2 Price-Related Factors to Consider in a FIP Resource Acquisition Plan

(continued)

Buy-in Pricing

Another price-related factor that you should examine is the possibility of “buy-in pricing.” This is the practice by some contractors of intentionally providing a very attractive low price for the FIP equipment (such as computers) in order to “buy in” or secure the contract; then, the contractor can charge relatively high prices for follow-on maintenance and other support services over the life of the contract.

You can see that, on a long term contract, a contractor could recoup any losses on hardware and make a greater than usual profit on support services, if he/she does not have to worry about competition. For this reason, you should be aware of the possibility of buy-in pricing by any offeror.

One way to do this is to establish the “should cost” price through careful market research. Then, during the evaluation of offers, you should be suspicious of any offers which are significantly below that price and to check those very low offers for cost realism, relative to other offers. You should ask “*Does this acquisition allow an offeror to ‘buy in?’*”

Software Licenses

Another price related factor to consider in the acquisition plan is software licenses. Unless the Government already has (or will have) clear right to use needed software, it may cost thousands of dollars in additional costs to acquire the necessary software licenses. Once you have committed the Government to use certain hardware, you may be tied to certain software and it may be too late to obtain favorable licensing terms for the software that you will need.

Therefore, be sure to ask whether any additional software licenses will be required. If there will be a requirement for software licenses, be sure to plan for acquiring the least restrictive license for the Government. However, you must be able to calculate the “should cost” price of such licenses and add it to the total acquisition cost, based on your market research.

(Topic continued on next page)

36.2 Price-Related Factors to Consider in a FIP Resource Acquisition Plan

(continued)

Software Licenses (continued)

In some cases, you may find that the requiring agency can make use of “common-use software.” *“Common-use software means software that deals with applications common to many agencies, that would be useful to other agencies, and is written in such a way that minor variations in requirements can be accommodated without significant programming effort.”* For example, some Government agencies already use certain accounting or data base software that might be useful to other agencies with little or no programming. The advantage of using such software is that little or no additional costs would be required, compared to procurement of new software. So, you should ask *“Does any other agency already have software that can be used?”*

(Note - for a further discussion of licensing requirements, see Chapter 11, “Licensing Agreements for FIP Resources Acquisitions.”)

Summary Checklist

You can see that it would be easy to overlook a price-related factor that should be considered in the acquisition strategy and the acquisition plan. Unless you consider the types of price-related factors discussed in this chapter, your acquisition strategy might be faulty and you might place the Government at a disadvantage in the acquisition.

You can use the checklist for cost-related factors on the following page to summarize the price-related factors and the types of questions that you should ask.

36.2 Price-Related Factors to Consider in a FIP Resource Acquisition Plan

(continued)

SUMMARY CHECKLIST FOR PRICE-RELATED FACTORS IN ACQUISITION PLANNING

	Yes	No	N/A	Comments
1. Has Lease versus Purchase analysis been done?				
2. Will there be finance charges for leasing of telecommunications?				
3. Have you calculated Government-furnished property costs?				
4. Have you considered costs of options?				
5. Have you considered economic price adjustments?				
6. Have you considered maintenance, training, installation, technical manual and supplemental supply costs?				
7. Have you considered power and cooling requirements?				
8. Have you considered the number of Government support personnel required?				
9. Have you considered floor space requirements?				
10. Have you considered buy-in pricing?				
11. Have you considered software licensing requirements?				

SUMMARY

In this chapter, you learned to itemize and apply special factors in developing an acquisition strategy for FIP resources. In the next chapter, you will learn to classify what type of authority an agency has to acquire FIP resources and construct an agency procurement request in accordance with the FIRMR.